MYRMECIA

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May 2010

MYRMECIA

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NOTICE

Statements made in *Myrmecia* do not necessarily represent the views of the Australian Entomological Society.

COVER

The cover for this year's *Myrmecia* features an illustration of the Water Scorpion, *Laccotrephes tristis*, by Nadia Waters.

Nadia's drawing was awarded second prize in the Student Section of the 2009 AES Illustration Competition.

COPY DEADLINE FOR NEXT ISSUE

Materials for publication in the August 2010 issue of Myrmecia are due by Friday, July 16 2010. Please submit contributions via fax, email or snail mail.

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PRESIDENT'S REPORT

For your amusement, lets look into the crystal ball and, of course, you will need to note the following usual disclaimer: Any resemblance, real or imagined, to extant persons or activities is purely academic and fictitious.

It is an out of session, on-line, staff meeting of the School of Genomic Evolutionary Eco-biology and Wildlife Zoology; non-conformist first years had been known to unkindly refer to the school as GEEWIZ (but they usually failed the multiple choice on-line aptitude tests for continuing at The University on-Q). The Executive Chief On-line Manager (EXCOM, the new title of Heads Of Schools), has just been given notice of an important announcement for a radical new idea from the Pedagogically Uniform Research Intensive Learning Environment (PURILE) Directorate Herself, and had called the meeting at short notice. EXCOM was hoping most 'under-liners' (the NewLine management babble for academic staff) would not be able to attend. The announcement was bound to cause trauma… perhaps even a question!

Most staff of the school had never met in real time or space, and morning tea together had been banned on all sorts of grounds (OH&S, harassment etc). Two weekly virtual meetings were the way business had been conducted for the last 20 years, after the tacit

acceptance of all staff in the previous school (whose name was now lost in the mists of time); the school had actually changed names 10 times over that period, which was world's best practice.

Pater had been running late but managed to complete his security retinal scan and attach himself in time to be recorded as attending the meeting. Non-attendance of any meeting meant at least one demerit point. Three points in a year and the ERA system automatically deducted funds from next year's quality time allocation fund.

The 3D holograph of the Directorate came into NewLine View in the Workstation Closet. Because the virtual holograph sessions were fully interactive, everyone drew themselves more upright in their supportive air-chairs, leaning slightly forward, eyebrows tightening, and feigning interest.

The Directorate Herself was "The Keeper" of the faith when it came to maintaining the highest quality standards and world's best practice of any University anywhere. The Keeper had in fact devised the quintessential definition of eLearning; "learning facilitated & supported through the use of information communication technologies. It is used to enrich the student experience by teaching for the way they live and learn" (some one actually wrote that and it was not me). *She now intoned in her usual Gregorian chant when speaking to under-liners: "After an exhaustive consultation process, user group surveys, focus groups and engagement with relevant stakeholders, the Central Academic Council for Consistent University Pedagogy has decided, with the blessing of our Over Vice-Chancellor, <long pause> (Pater raised an eyebrow) on a radical new way of undertaking T&L <key change by one octave, she had not actually read the missive from the OVC and had looked ahead>.*

All staff will now attend lectures in person and actually meet with students face to face in real space and time and talk with them". Gasps! What? The 3D images of the staff attending the meeting, particularly the recent teaching-focused CGI appointee, in the Workstation Closets in front of the Directorate, showed true horror. "Any questions?" she dismissively intoned.

"Has the Keeper of Occupational Kinetic Safety and Avoidance of Sexual Harassment approved?"

There had not been " a question" since the last face-to-face staff meeting. And this question had been asked by a CGI! These were essentially virtual robots: an amalgam with the voice of Attenborough, the screen presence of Hopkins, Jacksonian moves and De Caprio's looks, but able to access to the complete Wikipedia (Academic version) available at all times. This model CGI was guaranteed to deliver the identical virtual lecture each time. Pater thought that the rumours that these virtual academics were sentient might be true after all. Judging by the question perhaps they were not virtuous as well?

At that moment all screens went into the small spinning ball mode screen saver with soothing music and Wii-4D v24.2.i opened up, just in case some under-liners wanted to undertake their daily GYM exercise activities by batting the spinning ball around (one of EXCOM's better innovations to suppress dissent). No doubt the Interactive Development Information Oversight Technical Support unit (usually abbreviated to IT due to 'sensitivity to harassment' grounds) would be asked to sort out what had happened to the meeting.

The Directorate was rapidly searching OKSASH policy in the Newline View HUUP manual. Yes, it appeared lectures had been banned because students found them challenging and even harassing, so the University had embraced VODCASTs, PODCASTs and i-TUNES, the fore runners of the current Virtual Interactive Learning Environment and CGI appointees. "This would need some clever rewriting of history…", thought the Directorate…"Turn off TURNITIN she typed…."

And there, alas, ends the vision. So yes another little rant about life in the Academic swamp (although I know we are not alone), and I am sure it would never come to this?

On the other hand… how is it that the best and brightest minds that manage to survive a high school system, where one teacher per 25 students is considered the norm, go to our elite tertiary sector institutions where, one staff member to 300-1000 is considered a good learning environment? Yes I know we have heaps of tutors to help with the greatly reduced number of, but no doubt higher quality, laboratory classes, and of course PASS leaders (those that manage to run the gauntlet of multiple choice exams and make it to second year) to help mentor students through such a

traumatic first year (should they ever remove their ear plugs and listen to something other than the latest e-News or whatever). Is it just a lack of funding? No of course not! The spin from Canberra would be that Universities have never had it so good and what is more quality is set to improve after the current world class quality benchmarking exercise - where some ones favourite Journal gets an arbitrary high ranking (no, never, that could not happen). Oh sorry that was research quality not teaching. For some reason staff student ratios have gone up, practical sessions in Science (awfully expensive) have gone down in number and the shrill insistence that quality has gone up, with all 'the processes' under the sun to benchmark, measure etc this and that, has greatly increased. The Emperor has to at least appear to be clothed.

Let's do a little thought exercise and look again at those all seeing crystal balls that seem to know all:

Food security is going to be a major concern, perhaps sooner than we think. Particularly as it will be food security in the context of changing climate and declining energy (fossil fuel) availability (do we now not call all this Global change?) At the moment agriculture is not energy efficient; ecologically speaking it is highly subsidized (fertiliser, fuel, pesticides etc) let alone before the dry economists get started! How will Australian agriculture adapt in the face of Global change?

The research to enable this adaptation I see as having at least two major, related areas and both require the "multi-disciplinary" skills of well educated (not trained - we train dogs) plant and animal scientists. One area is in developing 'new plants' using all available technologies. At the moment this tends to be seen as a plant breeding or genetic transformation problem and usually targets specific traits. The problem is this is too limited a focus. What point is there in developing a plant resistant to say a specific insect if it is susceptible to a pathogen? If adding nitrogen-fixing properties to a plant, how will this impact on insect pests, pathogens, etc. We need to see all these transformations in a broader context from the outset and build teams that can do the work up front, not fix things after the event.

The other area requiring input from all (and more) is in putting these "new plants" into agricultural landscapes designed to be efficient and sustainable from an energy, water use and pest management point of view. This will require both 'narrow' discipline skills and integration. Managing GM plants will be (is) a challenge. The integration of pest management practice could act as catalyst uniting "plant and animal" sciences, both at the nuts and bolts breeding and landscape implementation level. It would be appropriate for RDC's to jointly fund such initiatives as opposed to the current essentially piecemeal approach.

Entomology is one of those key animal disciplines that management seems to have tried to smother; not a discipline in high demand so it cannot be important – we seriously need more Journalists and accountants. So although Universities have now closed down all named Entomology departments in Australia, some brave souls have tried to keep the flame alive for "courses in low demand". Progress has been made in developing a National Curriculum in Entomology with support from 4 participating universities and oversight by the Australian Entomological Society. The initiative grew out of the ICE meeting in Brisbane and David Merritt has taken the running.

The project, A National Curriculum for Entomology: Capacity Building through Collaborative, Web-based Delivery (now branded as Entomology Curriculum Australia, ECA) has established an offering of 4 insect science subjects in 2010. Although they are "on-line", there are hands on practical components and residential. We are not yet in a virtual world I lampooned earlier.

The ECA maintains an education-oriented web page (http://www.entomology.edu.au>) that provides information on the curriculum, including how-to guides on cross-institutional enrolment. It offers information on entomological education at all levels, including schools, and provides expert responses to public enquiries. Entomological research in Australia is

featured. Have a look sometime. I am sure David would appreciate feedback.

With an undergraduate specialization in entomology now "under control", the next step is to provide postgraduate coursework or professional development opportunities for personnel involved in insect-impacted industries. Urban pest management and agronomy are currently limited in their professional development opportunities around insect biology. The modular, web-based, flexible design of educational resources developed by the ECA team could be suited to meeting this need.

This is a great start now we need to maintain momentum and secure longer term funding so that this baby is not subject to "infanticide", so to speak.

I guess I never thought our Health system would come to where it is today, with the spin witch doctors from all sides making incantations for its revival. How did it come to this?

Myron ZALUCKI
President

VICE PRESIDENT'S REPORT

The core executive has had a busy few months. Two Society members, Leigh Nelson (CSIRO Entomology) and Modika Perera (WA Dept of Agriculture) were selected to attend Science Meets Parliament in March. SMP is one of the most important annual events that FASTS (The Federation of Australian Scientific and Technological Societies) organises, and it is a unique opportunity to see how our Federal Government works, and to meet parliamentarians. Both Leigh and Modika found the event rewarding and stimulating, and you can read their reports elsewhere in this issue.

The biggest challenge we face at this time of year is from those members who leave their subscription overdue by 9 months or more. Gordon Hooper our Treasurer has sent out a number of emails to members with outstanding subscriptions, but still approximately 20% of members haven't paid their subs. If you are one of the guilty, please fill in the form and fax, email or post it back to Gordon ASAP. The Society has been more lenient than most in sending you the Journal and *Myrmecia* gratis for more than 9 months now, and we don't impose a late fee as do many organisations. Over the next few months we will be testing a new on-line subscription payment system on the website which should make the process easier. It will go live for the 2010/11 subscription season.

In the last few weeks CSIRO announced the merger of the Division of Entomology with the Division of Sustainable Ecosystems taking effect from July 1, 2010. The merged mega Division (name to be announced) with 700 staff will be led by Dr Mark Lonsdale, currently Chief of Entomology. While in some ways it is sad to see the 82 year-old Division of Entomology (once known as Economic Entomology) disappear, there are many new synergies and opportunities that emerge when the capabilities and potential of the new Division are realised.

Since last *Myrmecia* the Australian Academy of Science has announced members elected for 2010. These include two members of the Society, Professor Scott O'Neill (University of Queensland) and Dr John Oakeshott (CSIRO Entomology), bringing to five (also Professor Ary Hoffmann, University of Melbourne, Dr Max Day and Dr Max Whitten, CSIRO Entomology) the number Academy members who are also members of our Society. Congratulations to both of these newly elected Fellows – they belong to an extremely select group of eminent Australian biologists.

Great progress is being made on the 2010 conference of the Society in Perth (www.aes2010.org), and in organising the joint meeting with the New Zealand Entomological

Society in Christchurch, during the week of 29th August 2011. Please put both these important entomological events on your calendar.

David YEATES
Vice-President

NEW MEMBERS

We welcome two new full members **Champa Rajapakse** and **Rivoldiantoe Basran**, and one new student member, **Jennifer Spinner.**

For his PhD at Queensland University, Champa studied host plants of *Helicoverpa armigera*, trapping and screening with Gas chromatography-Electroanntenagraphy and Mass Spectroscopy) the plant volatiles released from host vs non host plants. Prior to that he obtained an McS in Entomology from Texas A&M University, USA, studying juvenoids as controls for the cat and dog flea, *Ctenocephalides felis*. With that background and a passion for insects, he has moved to a post as an Entomologist with AQIS the North East Region.

Rivoldiantoe is with the Department of Agriculture in Malaysia.

Jennifer is studying for her PhD at the E.H. Graham Centre for Agricultural Innovation at Wagga Wagga (Charles Sturt University and Industry and Investment NSW), researching the entomopathic fungus *Beauveria bassiana* as a biological control agent for Greenhouse Whitefly, *Trialeurodes vaporariorium*. She comes to the study with very considerable background experience in plant protection and, more recently, biosecurity.

LOST MEMBERS!

Since the mail out of our last issues of *Myrmecia* and the *Australian Journal of Entomology*, the executive has spent some effort locating members who have changed their mailing addresses, but not notified the Society. Thanks to the various people who have assisted with this. Unfortunately, we have not always been successful.

Alice WELLS
Honorary Secretary

THE AUSTRALIAN ENTOMOLOGICAL SOCIETY INC. 41st AGM

The society's 41st Annual General meeting will be held in the Swan Valley, Western Australia, in September 2010. A provisional agenda list appears below.

PROVISIONAL AGENDA

1. Opening and general announcements
2. Announcements of proxies and apologies
3. Deaths of members recorded since the 41stAnnual General Meeting
4. Minutes of 40th Annual General Meeting
5. Business arising from the minutes
6. Annual Reports
   - Vice President
   - Treasurer
   - Chief Editor
   - News Bulletin Editor
   - Committee Reports
   - Conservation Committee Report
   - Education Committee Report
7. Society Awards
8. Business arising from the 78th Council Meeting
9. Announcements of Office Bearers and Councillors for 2010-11
10. Report of the organising committee for 41st AGM
11. Report of the organising committee for 42nd AGM
12. Other business (arranged with Secretary no later than 31 August 2010)
13. Close

CALL FOR NOMINATIONS OF OFFICE BEARERS AND COUNCILLORS

The following offices will fall vacant at the Society's 41st Annual General Meeting in September 2010. Nominations for election should be made on the form available on the Society's website and should reach the Secretary no later than 31 August 2010.

The position of President will become vacant in 2010. The Vice President, Secretary and Treasurer were elected at the 39th AGM for two

years, and will be eligible for an additional two years from 2010.

Office	Present Incumbent
*President	Myron Zalucki
Vice President	David Yeates
Secretary	Alice Wells
*Treasurer	Gordon Hooper
Chief Editor	John Mathiessen
Myrmecia Editor	Sonya Broughton

Regional Councillors

A maximum of three years is allowed under the Constitution for any Regional Councillor's term. The number of years served by each Councillor by the AGM in 2010 is given in brackets. Those who have completed three years are not eligible for re-election. Overseas representatives and Representative Councillors do not have limited terms. Nomination forms are available from the AES web-site.

*Australian Capital Territory	Trudy Wharton (3)
New South Wales	Sarah Mansfield (2)
	Murray Fletcher (2)
*Northern Territory	Chris Palmer (3)
Queensland	Jane Royer (2)
	Tony Clarke (2)
South Australia	Joanne Kent (2)
*Tasmania	Paul Walker (3)
Victoria	Piotr Trebicki (1)
*Western Australia	Modika Perera (3)

Overseas Representatives

Papua New Guinea	Lastus Kuniata

Representative Councillors

Ent. Soc. Queensland	Christine Lambkin
Ent. Soc. NSW	Martin Horwood
Ent. Soc. Victoria	Ian Endersby

* indicates positions that will become vacant

SCIENCE MEETS PARLIAMENT REPORTS 2010

Modika Perera (left, DAFWA, Perth) and Leigh Nelson (right, CSIRO, Canberra) at the Breakfast Briefing to celebrate 'International year of Biodiversity' at the Parliament House. Photo: Lorna Sim (FASTS)

Modika Perera (Department of Agriculture and Food Western Australia) represented the Australian Entomological Society at Science Meets Parliament (SmP) in mid March this year. This event was organised by the Federation of Australian Scientific and Technological Societies (FASTS) which represents about 60 professional societies and about 60,000 Australian Scientists and Technologists. More than 200 women and men working across a wide range of scientific disciplines from both the Biological and Physical Sciences arrived in Canberra to participate in this two day event.

While attending this unique event, I gained a greater understanding of political process, how policy is developed and what issues parliamentarians respond to. I also learnt the best way for myself and my colleagues to present our issues, challenges and needs to Federal Government parliamentarians and their advisors to gain the best possible outcomes. There is a need to place emphasis on the importance of our scientific research and how our research can play an essential part in the Australian economy and Australian society. I also gained a clearer insight into the world of the media. Topics discussed ranged right across the science disciplines and included Climate change, Biodiversity and Nuclear techniques.

Sophie Mirabella MP, Shadow Minister for Innovation, Industry, Science and Research was the guest speaker for the introductory session. Ms Mirabella very enthusiastically described expanding her knowledge on innovations, research and development and presented an insight into a science curriculum in Australian schools. She discussed the major challenges we are facing today such as retention of our scientists and training of men and women in Science.

The first day of SmP ended with a Gala Dinner held at Parliament House. Many parliamentarians from all political parties attended the Dinner and my colleagues and I enjoyed having the opportunity to talk to the parliamentarians face-to-face. The after dinner keynote speaker was Peter Yates, the Chair of the Australian Science Media Centre and the Royal Institute of Australia, and he showed us the importance of Science in policy development and Australian Industry.

SmP 2010 Participants Photo: Lorna Sim (FASTS)

As a part of this event there was breakfast briefing to celebrate the International year of Biodiversity and this was opened by the Hon Peter Garrett AM, Minister for Environment Protection, Heritage and the Arts. This was well attended despite the early start and the strict security measures being employed inside Parliament House due a visit by the Indonesian President. At lunch time there was as nationally televised National Press Club Lunch addressed by Chris Mooney. Chris is from the United States of America and is the author of *The Republican War on Science and Unscientific America*

His address was focused on integrity and validity of Science and he noted that recently science has been placed under particular scrutiny because of the climate change debate. He also pointed out that negativity surrounding science has a detrimental impact on decision makers and young scientists' career decisions. He urged funders, producers, reporters, advocates or consumers of Science to take some responsibility to collectively ensure Australia remains a nation driven by knowledge rather than doubt.

My face–to–face meeting was with Chris Back - Liberal Senator from Western Australia. The meeting was held with groups of 2 -3 scientists for about 20 minutes. During the meeting I discussed importance of understanding insects and their impact on interstate and international trade, how the Western Australian Ord River Irrigation Area's (ORIA's) cotton industry initially failed due to an unseen insect problem, future adequate infrastructure funding and use of genetically modified insect resistant cotton to develop into a viable industry for the region.

Modika PERERA

Leigh Nelson also attended the 11th Science meets Parliament (SmP), held at Parliament House, Canberra. Leigh has completed a year as

a Postdoctoral Fellow at the Australian National Insect Collection (CSIRO Entomology, Black Mountain), and attended this meeting with the support of the Australian Entomological Society. The Federation of Australian Scientific and Technological Societies (FASTS) runs SmP every year as an opportunity for scientists to meet with parliamentarians and to understand how science can influence decision makers.

The first day was principally a briefing, with participants getting to know one another and hearing from guest speakers. A series of professional development seminars provided insight into how to engage with the media and policy-makers effectively. Media presenters included James Massola (Canberra Times political reporter) Alison Carabine (ABC Radio National presenter) and Mark Riley (Channel 7 reporter). Presentations were also given by the Prime Minister's speechwriter, Tim Dixon, as well as Sophie Mirabella (Shadow Minister for Innovation, Industry, Science and Research), Patricia Kelly (Deputy Secretary, Department of Innovation, Industry, Science and Research), Richard Denniss (Executive Director, The Australia Institute), and Martin Callinan (Policy Director, Australian Academy of Science). With the guidance of Lyndal Byford (Australian Science Media Centre) and Niall Byrne (Science in Public), participants were encouraged to practise articulating their science in a succinct and meaningful fashion, that would be of use when addressing politicians and policy-makers. On Tuesday evening, delegates attended a dinner at the Great Hall with compère Robyn Williams (ABC Radio National), a welcome by Kim Carr (Minister for Innovation, Industry, Science and Research), and an address by Peter Yates (Chair, Australian Science Media Centre and The Royal Institute of Australia).

The second day started with a breakfast briefing on biodiversity, with a welcome from Peter Garrett (Minister for the Environment Protection, Heritage and the Arts). Lunch was taken at The National Press Club, where we were treated to an address by Chris Mooney, a senior correspondent for The American Prospect magazine and author of the controversial New York Times bestseller, 'The Republican War on Science'. This speech was definitely a highlight of the two days for me. My scheduled meeting with a parliamentarian was with Barry Haase, Member for Kalgoorlie (WA). Mr Haase's electorate covers over 2 million square kilometres of WA, and is believed to be the largest electorate in the world! Mr Haase impressed me with his appreciation and understanding of the ecological issues affecting his electorate.

I thoroughly enjoyed the two days at Parliament House. I was able to meet with a cross-section of scientists from a range of disciplines and backgrounds. I have also gained an understanding of the complex nature of government, the policy-making process, and the influence of the media. The climate change debate highlighted the increasing difficulties encountered by scientists in the face of powerful public scrutiny. We were made aware of the need to communicate effectively and strategically in the policy arena in order to convey our messages in a proactive manner. I am very grateful to the AES for facilitating my attendance, and would definitely recommend this Meeting to other early career researchers or anyone who is interested in communicating their science beyond the journal article.

Leigh NELSON

OBITUARIES

ROSSITER HENRY CROZIER
(1943 - 2009)

On 12 November 2009 after a typically happy morning, Ross Crozier collapsed in his office and despite the efforts of many, could not be revived. He passed away in the company of his wife Ching and numerous members of his laboratory and School. He is survived by Ching, his two sons Ken and Michael, granddaughter Madeleine and siblings Brian and Judy. His passing sent a shock wave around the world.

A now famous photo of Ross in the insect collections of the Chicago Field Museum, taken the week before he passed away (Photo: Alex Wild).

Ross held a special place in the study of social insects within Australia. He was the President of the Australian section of the International union for the Study of Social Insects society in 1998/1999 when the Australian section hosted the successful XIII International Congress and he continued to play an active role promoting the society and social insect research on a global scale. His love of ants in particular permeated his life and his discovery of an ant with only one pair chromosomes (*Myrmecia pilosula*, in collaboration with Mike Crosland) highlights the depth of his research interests.

While Ross's research efforts were embedded in the study of social insects and social evolution, they had a much wider impact on the areas of evolutionary genetics and conservation biology, and included a diversity of additional non-social taxa such as fig wasps, fish, crocodiles, birds, bats and even octopus. With a strong background in population genetics and the theory underpinning this area, Ross pushed the newly developing molecular technique to answer critical questions of social and evolutionary biology.

The breadth of his significant contributions and influence are immense: over 70 Honours, postgraduate and postdoctoral researchers trained in his laboratory, he co-authored papers with 75 different colleagues in the last three years alone, from a career total of over 200 papers generating over 5000 citations. In addition to membership in the Australian Academy of Science and the American Association for the Advancement of Science, Ross was the first recipient of the Hamilton Award from the IUSSI. The appearance of testimonials in journals such as Science, Ecology Letters and Evolution (with more to come) further highlights the breadth and depth of his achievements.

For those not familiar with Ross' path, he was born to an Australian family in India during the Second World War, and spent most of his early years in Burma and Malaya. Ross' father worked in the mining industry and travelled extensively. Each of his siblings, Brian and Judy, were born in different countries. And while Watson and Crick were working on the structure of a potentially interesting chemical called DNA, Ross had already made his first entree into the world of

social insects (he opened a nest of termites: alas, we never did ask Ross what species), an area he would pursue passionately for the rest of his life. He completed his school education as a border at Geelong Grammar School in Victoria, then studied genetics at the university of Melbourne, influenced by the evolutionary geneticists Michael J.D. White, himself a student of J.B.S. Haldane. It was here that Ross met his future wife and research colleague, Ching Kok.

Ross completed his PhD at Cornell under the supervision of the renowned ant biologist William L. Brown, and the moved on to the University of Georgia as a demonstrator in Genetics, before returning to Australia as a lecturer at the University of New South Wales, where he rose to the rank of Professor. In 1990 Ross moved to La Trobe University as the Chair of the Department of Genetics and Human Variation, and in 2000 made his final move to the James Cook University, where he took up a personal Chair as Professor of Evolutionary Genetics in the School of Marine and Tropical Biology.

Some of the most notable achievements to become evident after Ross' passing, in additional to the recognition of his scholarly contributions, were the high personal esteem in which Ross was held, and the breadth and scope of his contributions to the life of his family and colleagues. There was a universal acceptance that Ross was a scholar and gentleman, who played a significant role as mentor and colleague. Testimonials flowed in from those who had know Ross at many stages in his life, from one of his school teachers at Geelong Grammar who remembers meeting Ross on the day he arrived in Australia, to graduate school office mates and recent PhD students. Many commented on Ross' love of Macintosh computers and gadgets, and even within his family, his love of 'pockets full of pens and a good pair of shorts' is still a point of discussion.

Ross managed to keep in contact and continue to support many of his students long after they left his laboratory. His ability to provide references was prodigious. And although the Crozier lab will close at the end of this year with completion of the final graduate students and postdocs (from Germany and China), the spread and success of so many 'Crozierites' throughout the world means that the critical and enthusiastic study that so typified Ross, will continue unabated.

It is difficult to end a discussion of Ross' achievements confident that his achievements and impacts on both a professional and personal level have been appropriately acknowledged. So I will simply end by borrowing a statement from Barry Bolton, who summed up the feeling of many when he noted "You were a good bloke Ross, and I shall miss you."

Simon K.A. ROBSON
School of Marine & Tropical Biology
James Cook University

KEVIN THOMAS RICHARDS (1932-2009)

Kevin Thomas Richards died on 22.xii.2009, aged 77. Kevin grew up on his father's farm at Morowa, Western Australia, together with an older brother and a younger sister. Later, Kevin's father left the farm and started up an apiary business. After primary school, Kevin was enrolled as a boarder at Scotch College from 1946 – 1950. He commenced National Service training immediately after leaving school and on completion enrolled as a student in the Agricultural Science course at the Institute of Agriculture at UWA in 1951. During his time at the University, he became interested in large bore rifle shooting and intermitted from his University studies in 1953 to travel as a member of the Australian National Rifle Association team to compete in the Queen's prize at Bisley, UK. Until then he was the youngest Australian competitor to do so. On return to Australia he completed his B.Sc. (Agric) and continued to compete in rifle shooting and won the Queen's prize (W.A.) in 1959.

From 1956 Kevin was employed as an entomologist at the W.A. Department of Agriculture, initially working in the old chapel building in Adelaide Terrace Perth. In 1959 he was transferred to the Kimberly Research Station at Kununurra where he was involved in research into insect pests of cotton and other crops. He also collected local insects which formed part of the insect reference collection at the Department of Agriculture. He was later awarded an M.Sc. (Agric) for a thesis describing the insect fauna occurring at KRS.

Kevin Richards. Photo: Peter Maloney (DAFWA)

In 1960, Kevin married Crystal Pilter, also an entomologist. After 4 years at KRS he transferred back to Perth where he remained until retirement. During his working time he was a member of the Pesticides Committee and was involved in the attempt at Biological control of Patterson's curse, the control of fruit fly and the control of European wasps. His main personal interest was in collecting and photographing buprestid beetles. In the latter part of his employment, he was made curator of the insect reference collection at the Department of Agriculture.

Kevin's personal interests included photography, with which he gained a high level of competence both in still and movie photography, and prospecting for gold. He held a mining lease for many years in an area north of Wiluna and was successful at finding nuggets with the use of a metal detector. On his many camping trips to the area, he always set up an insect light trap at night to sample the local fauna. Kevin bought and developed a property close to the Canning River and delighted in the planting of an arboretum close to his house. Throughout his life Kevin was a quiet and unassuming achiever much loved by his family and friends. He is survived by his wife Crystal, daughter Karen, son David and three grand-children.

Shelley BARKER

Lymanitriid caterpillar ex Acacia lasiocarpa. Photo: Rebecca Graham (DAFWA).

A REVISION OF THE AUSTRALIAN LYMANTRIIDAE

Report by A.P. Mackay, Yandina, Queensland, recipient of an AES Research Grant (2008-09)

The Lymantriidae or "Tussock Moths" are a small noctuoid group found world wide. They are of particular interest since several species are important invasive pests (gypsy moths) and the larvae and adults of many species cause urticaria. Although present in temperate regions lymantriids are particularly diverse in the tropics of the Old World. The Checklist of Australian Lepidoptera (The Checklist) lists 74 species and whilst there may be doubts as to inclusion of two or three species on the list, it is generally accepted that many undescribed species await recognition. A rough indication of the number of described species present in each Australian state is given in Fig. 1 which also illustrates the trend towards greater diversity in the tropics.

Fig. 1 also highlights possible links between the Australian fauna and that of New Guinea. One of the challenges of reviewing the Australian fauna is to elucidate the possible overlap between the faunas, an awkward task as the New Guinea fauna is less well known than even the Australian one. The small number of lymantriid species recorded from Western Australia and South Australia no doubt reflects under collecting but is also likely to reflect a real paucity in the fauna compared to northern and eastern Australia.

The Australian Lymantriids were last

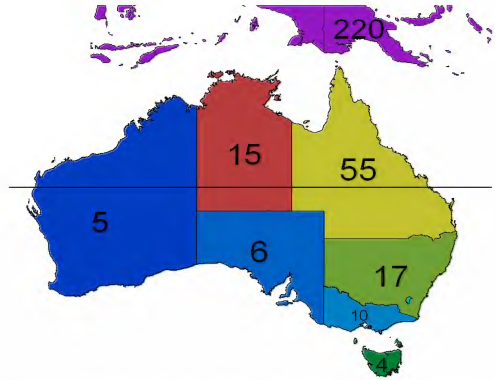


Fig. 1. Lymantriid diversity in Australia and New Guinea.

reviewed by A.J. Turner in 1921 and little taxonomic work has been carried out on them since then. **The purpose of the grant was to assist with the task of resolving the Australian Lymantriidae at the generic level**. The Checklist shows 18 genera are found in Australia. The largest genus is *Euproctis* with 37 species. It is generally recognised that as used in the Old World fauna for many years, the generic concept for *Euproctis* is very broad; several authors have made attempts to clarify the various genus-groups within its broad definition. The current review of the Australian "*Euproctis*" indicates that it contains at least 11 genus groups: *Euproctis*, *Orvasca*, *Somena*, *Artaxa*, *Nygmia*, *Urocoma*, and five apparently undescribed genera. The number of undescribed species in some of these genera is also proving to be surprising: Queensland specimens that would usually be placed as '*E. limbalis*' or '*E. baliolalis*' (but are more appropriately placed in *Urocoma*) in fact belong to any of six (mostly undescribed) species found in coastal areas between Townsville and the Queensland/New South Wales border. So far they have proved to be distinct from similar species found in New South Wales and Victoria; when examined more closely these latter may prove to be equally as speciose as the Queensland group. Indeed, as more Queensland specimens from coastal and inland areas are examined, the number of Queensland species in this group may also increase.

The genus *Nygmia* provides a simple example of the issues surrounding the overlap between the Australian and New Guinea faunas. *E. subnobilis* is a large, brightly coloured day-flying moth that is said to occur in north Queensland, New Guinea and adjoining islands; it is more appropriately placed in *Nygmia*. The Checklist lists four generally accepted synonyms for the species, including *E. ericydes* Turner for the specimens from north Queensland. Examination of the genitalia of Queensland and mainland New Guinea material shows that the Queensland material is specifically distinct from that of New Guinea and that there are two distinct (*Nygmia*) species in New Guinea, neither of which may be *subnobilis* since its type locality is Amboina, an island in the Moluccas. However, it has not, so far, been possible to examine the type of *subnobilis*, so the status of the Australian and New Guinea species is not absolutely certain.

Although *Euproctis* is by far the most taxonomically confused group within the Australian Lymantriidae, members of that diverse complex of taxa often placed in *Dasychira* are also present in Australia. The Checklist correctly places these in *Olene, Teia* and *Calliteara* but there is one undescribed genus to be added to this group and others may be found as more material is examined.

One of the challenges of Lymantriid taxonomy is that the family contains many pure white species with few distinguishing characteristics and the Australian fauna is typical in this respect. Most of the small white species currently placed in *Euproctis* belong to the genus *Orvasca* and work continues on resolving this genus at the species level. Another genus with a few white species is *Acyphas* although one of the coloured species, *'A. amphideta'* belongs to an undescribed genus, the other (undescribed) members of which are white. *Arctornis* and *Euzora* are other genera that in Australia are represented only by pure white species. Traditionally any Australian specimen in *Arctornis* would be identified as *A. submarginata* but this is a south-east Asian species and the Checklist correctly gives no specific name for Australian *Arctornis*; there are at least three undescribed *Arctornis* species in north Queensland. *Euzora* contains one described species in Australia, *Eu. collucens*. Two undescribed species from far north Queensland, previously thought to belong to *Euzora,* are now known to belong to an undescribed genus with asymmetric valves like *Leucoma*, but with a very strong, hooked uncus which has a robust and bizarre dorsal process. Similar, undescribed species are also known from New Guinea.

The remaining Australian genera in The Checklist seem not to provide many further complexities at the generic level, but as work progresses more undescribed genera may be found. Certainly, at the species level, the Australian fauna will prove to be far more diverse than originally thought.

A.P. MACKEY
Yandina, Queensland

ENTOMOLOGY AROUND AUSTRALIA

NORTHERN TERRITORY

CSIRO Sustainable Ecosystems – Tropical Ecosystems Research Centre

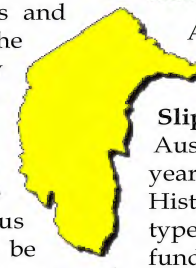
The Darwin ant biodiversity lab is a partner in a French-based research consortium looking at the effects of fire on biodiversity in New Caledonia. This large South Pacific island group is considered one of the world's most critically endangered and biogeographically most important hotspots, having an extraordinary diversity of endemic, and extremely primitive plants and animals of Gondwanan origin.

The biodiversity in New Caledonia's subtropical rainforests is threatened by extensive areas that have been severely degraded by anthropogenic fires. PhD student **Maïa Berman**, from Charles Darwin and Montpellier Universities, is looking at the effects of fire on New Caledonian ant biodiversity, based in **Alan Andersen's** ant biodiversity lab. This month, Maïa and Alan Andersen will travel back to her field sites in both the north and south provinces to sample for more ant species.

The ant biodiversity lab welcomes Charles Darwin University student **Wendy Welsh**. Enrolled in the Professional Practice in Applied Science course, Wendy is gaining valuable experience in working on a six week project in a scientific organisation. Wendy's placement project involves pinning and identifying ant species collected by **Colin Trainor** from Timor and surrounding islands.

In February, French students **Laureline Kain** from Montpellier Supagro University and **Perrine Poher** from University of St Jerome in Marseille arrived to undertake six month internships. Laureline's project is working in collaboration with NSW Government biodiversity staff sampling ants as part of broader biodiversity monitoring around Chichester/Myall Lakes, Wauchope and Coffs Harbour in northern coastal NSW.

Perrine is supervised by **Ben Hoffmann** and her project involves Yellow crazy ant (*Anoplolepis gracilipes*) management in NE Arnhem Land. Perrine has been sorting through pitfall trap samples to assess non-target impacts and ecological recovery post treatment. She is also looking at the impact of Yellow crazy ants within mine site rehabilitation.



Next month, the Darwin ant biodiversity lab is expecting **Lucile Baud**, a student from Agro Campus Ouest in Angers, France. Lucile will be assisting WA Department of Environment and Conservation with research on the effects of fire on biodiversity in the Kimberley region.

Department of Natural Resources, Environment, the Arts and Sport

Biodiversity Conservation Division

After experiencing 2009 as the driest year on record, in Alice Springs **Chris Palmer** has been enjoying the marked increased activity of many species in central Australia after good rain in January, February and April this year. The same can't be said for members of the wider community, which have been spraying, swatting and stomping since the beginning of the year. In particular, there's been a large emergence of many species of Orthoptera, and there's been quite a lot of local media interest in the various 'plagues'.

Museum and Art Gallery of the Northern Territory

In Darwin, **Michael Braby** has been undertaking detailed surveys of the agaristine (day-flying moth) fauna of Kakadu National Park this wet season, with five field trips between November and February. The area is rich in species diversity and this season he discovered two undescribed species, including their life histories. Michael also completed and submitted a major review paper on the systematics of Australian butterflies, updating changes in nomenclature and taxonomy of the fauna over the past 10 years.

Chris PALMER
NT Regional Councillor

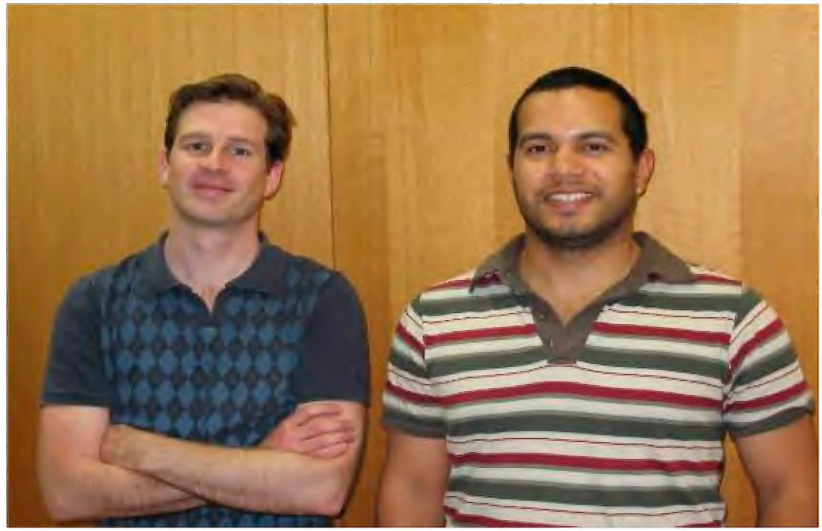
AUSTRALIAN CAPITAL TERRITORY

Australian National Insect Collection (ANIC)

ANIC staff wasted no time getting back to full-scale work after the summer break. In the Coleoptera laboratory, **Adam Slipinski** reports that most of the work on Australian Coccinellidae should be finished this year. Adam spent two weeks in the Natural History Museum in London, photographing types and scoring characters for his ABRS-funded project on Australian Cerambycidae. **John Lawrence** visited for two weeks to work on two major projects – a new revised and expanded edition of the very popular book *Australian Beetles*, and a comprehensive morphology-based phylogeny of beetles for the Beetle Tree of Life project, which will include about 350 genera and 650 characters. We welcome back our friend **Hermes Escalona**, PhD student at the Universidad Central de Venezuela, who is working with Adam on a revision of the beetle family Salpingidae, and is also helping Adam and **Ainsley Seago** in their work on the Australian Cerambycidae. **Tom Weir** has been providing taxonomic support to University of Canberra PhD student **Anett Richter**, confirming the identification of beetles from ACT

grasslands, and **Nick Porch** to compare ANIC specim beetle fragments he coll Victoria.

Sonja Scheffer from th Entomology laboratory spe the ANIC Diptera laboratory potential new projects on biology of several families o **David Yeates** found time Annual Research Forum Research Information Ne Participants presented th projects, and discussed poss for the Commonwealth Env Facilities program. **Steve** revision of 80 species *Iridomyrmex* has been acce and should appear later this



New arrivals in ANIC, March 2010 - Olivier Béthoux (left) and Hermes Escalona (right). Photo: Bruce Halliday.

Olivier Béthoux is visiting the ANIC for six months as Endeavour Award Postdoctoral Fellow under the supervision of Beth Mantle and Stephen Cameron. Olivier is planning to investigate wing venation homologies in Phasmatodea and Ensifera. The results will be used to examine the phylogenetic position of Phasmatodea within Insecta, and to test hypotheses relating to a unique vs. multiple origin of the stridulatory apparatus in male Ensifera. He is searching ANIC collections for key taxa, looking for evidence of intra-specific variation in wing venation patterns.

Bruce Halliday has been busy completing two large revisions of the soil mite family Eviphididae, one on the European fauna with collaborator **Peter Mašán** (Bratislava), and another on the Australian species. Eviphidids are nematode predators that occur in agricultural soils, leaf litter, dung, and piles of seaweed. Bruce has also recently finished projects on the taxonomy and biology of mite commensals of dung beetles, cockroaches, and several species of birds, with collaborators in Slovakia, The Netherlands, and Poland.

The major thrips project at present is development of a LucID key for the genera and 200 species of Thripinae known from Australia. **Desley Tree** visited from Indooroopilly for a week in January to help push this project forward. She continues to draft data sheets for each species, while **Laurence Mound** works on the identification system. Other recent thrips work has focussed on various aspects of the overseas fauna, including biological control of Brazilian pepper tree for Florida, the species of the genus *Thrips* from Africa for quarantine entomologists, the Iranian species of *Chirothrips*, a worldwide genus of grass thrips and, with **Mark Hoddle** from Riverside, California, who visited for a week in February, a checklist of Thysanoptera of the Galapagos Islands.

The Lepidoptera laboratory has also been a busy place. **Todd Gilligan** and **Mark Epstein** from Colorado State University visited to check the identity of some Olethreutinae to incorporate into their molecular phylogeny, and Mark also took the opportunity to sort out some Limacodidae. Len Willan made one of his regular visits to photograph some Cossidae for *Australian Moths Online*; **Marilyn Hewish** and **Peter Marriott** came to prepare some material for future parts of *Victorian Moths*; **Peter Mackey** came to look at some Lymantriidae; and **Grant Miller** (butterflies), **Bart Hacobian** (Pyralidae),

John Tennent (New Guinea butterflies), and **Kathy Skolarski** also spent time in the Collection. The Lepidopterists were greatly saddened to learn of the death of **Ken Sandery**, and we extend our sympathy to his wife and family. Ken was a long-time friend and collector who started work in Adelaide but retired to Mackay, Queensland, where he collected moths assiduously for many years, especially Microlepidoptera. **Marianne Horak** travelled to Mackay to prepare his very valuable collection for transfer to the ANIC.

Bobbie Hitchcock has been busy travelling, firstly to Brisbane to look at the collection of *Epiphyas* in the Queensland Museum and to take part in the Global Biosecurity conference, where she received an Honourable Mention for her poster on the molecular systematics of the *Epiphyas postvittana* species group. She then went to Lord Howe Island and successfully collected the little-known species *Epiphyas aulacana* from the endemic shrub *Cassinia tenuifolia*. Then in March Bobbie went to Adelaide and, with the invaluable local knowledge and generosity of **Cate Paull** (SARDI) and collaborator **Gita Siekmann**, brought back five more species of *Epiphyas* for her molecular phylogeny.

In the molecular systematics laboratory, **Stephen Cameron** welcomed two new arrivals - a new PCR machine that has improved the speed and efficiency of many projects, and Honours student **Dimitris Bertzeletos**, who is working on molecular systematics of lice that parasitise parrots.

Abdul Gafur has been sorting through a large collection of new-collected soil samples looking for burrowing nematodes of the genus *Radophilus*. Not much is known about this genus except that it contains some important crop pests, so Abdul has been collecting from the type localities of known species to confirm their identifications and therefore, their geographic distribution and food plant ranges.

Bruce HALLIDAY

QUEENSLAND

JAMES COOK UNIVERSITY, CAIRNS

Kylie Anderson attended the Global Biosecurity conference in Brisbane in February, as well as the Australian Biosecurity Intelligence Network Tools for Targeted Surveillance Network Workshop.

DEPARTMENT OF EMPLOYMENT, ECONOMIC DEVELOPMENT AND INNOVATION (DEEDI), Mareeba

Harry Fay (DEEDI Mareeba) and **Hainan Gu** (DEEDI Indooroopilly) were travelling to Jakarta in April for the inception meeting for the ACIAR project "Area-wide management of pest fruit flies in an Indonesian mango production system". **Vijaysegaran**, formerly of the International Centre for Management of Pest Fruit Flies (ICMPFF) at Griffith University, will be acting as a consultant to the project and was also attending the meeting. The ICMPFF is also involved in the project providing technical input, specialist taxonomic support and training. The principal Indonesian partner is the Directorate General of Horticulture of the Indonesian Ministry of Agriculture. The project will be centred on the Indramayu area in the eastern part of west Java and is aimed at a reduction in fruit fly infestation levels in mangoes through a production area, not at enhancing exports. *Bactrocera papayae* and *B. carambolae* will be the main species targeted. The project will run until 2014".

QUEENSLAND UNIVERSITY OF TECHNOLOGY

Mark Schutze takes a moment in his busy schedule to browse Tome IX of Traité de Zooloaie: one of over 100.000 volumes housed in Schloss Seibersdorf.

Fruit fly work in **Tony Clarke's** lab is picking up impetus with the arrival of new students and the postdocs getting into full swing. This academic year sees the start of three new research students, **Ema Vueti** (Masters, dispersion of fruit flies in the Bundaberg agricultural production area), **Craig Marsden** (PhD, the role of fruit physical properties in influencing host use in fruit flies) and **Kumaran Nagalingam** (PhD, functional role of cue-lure and related chemicals to *B. tryoni*). The fourth student of the current cohort, **Sakuntala Muthuthantri**, is currently on maternity leave and we congratulate her on the successful delivery of her second son, Arosh Buwaneka Muthuthantri. **Solomon Balagawi** and **Kevin Jackson** (DEEDI) have had a busy summer and autumn with field experiments on *B. tryoni*, asking questions concerning the spatial distribution of flies in the field and protein foraging behaviour. **Mark Schutze** has now left the tropics of Thailand and is undertaking a six month placement at the United Nations International Atomic Energy Agency laboratories situated near the village of Seibersdorf, Austria (see photo). Here he will conduct a range of 'live-fly' trials, including cross mating experiments, on *Bactrocera dorsalis* complex fruit flies. 'Unfortunately' the closest accommodation to the Seibersdorf facility is a 17th century Austrian castle, Schloss Seibersdorf.

Matt Krosch is nearing completion of his PhD which encompasses several levels of evolutionary scale in investigating patterns of relationships among Gondwanan orthoclad chironomids: within-species phylogeography and fine-scale population genetics. Using molecular data, Matt's research has revealed novel patterns of strong natal site fidelity and distinct susceptibility to historical population fragmentation.

And finally a plug from Amy Carmichael: Comprehensive three day workshop on PaDIL, Remote Microscopes, the Plant Biosecurity Toolbox and more! Learn about what's new, what's coming, how, and why! To be held at Knoxfield, Victoria 25-27 May, 2010. RSVP to Julianne.Farrell@deedi.qld.gov.au or ae.carmichael@qut.edu.au

SCHOOL OF BIOLOGICAL SCIENCES (BIOL), THE UNIVERSITY OF QUEENSLAND

Bronwen Cribb and a team of researchers from UQ, ANU, UNSW, SU, UWA and FU have been awarded an Australian Learning and Teaching Council grant to develop 'A national approach to education in advanced microscopic characterisation through integrated learning tools'. Their aim is to develop online tools to teach Australian students about topics such as light microscopy, scanning and transmission electron microscopy using virtual laboratories to develop operational skills. Entomologists need

these skills and the project will complement "Entomology Curriculum Australia", under development by **Dave Merritt** (BIOL, UQ) and collaborators.

Myron Zalucki has been in Samoa and Fiji attending ACIAR project meetings, in Canberra sitting on the National Committee for Plant and Animal Sciences (an Academy of Science committee), and has also been involved in the GRDC-funded project on pest suppressive landscapes. Part of the latter project involves the use of traps to help understand the movement of insects between native vegetation and crops.

Anthony Robinson, previously of UWA, will be an Australian Youth Ambassador for Development for 12 months in Samoa. He will be helping out projects being undertaken by **Mike Furlong** that use IPM to help control diamondback moth and large cabbage moth in Brassica crops.

Jonathon Robson has started an Honours project with **Gimme Walter** on using IPM to enhance the development of the date palm industry, particularly in respect of armoured scale insects. **Michelle Rafter** (PhD candidate, Walter lab) has finished conducting mating trials of her "citrus" thrips and has been in South Africa collecting specimens for the molecular component of her project. Fortunately, she survived close encounters with a leopard in a creek bed and a black mamba!

Dave Merritt was in New Zealand in February at a meeting for the Waitomo Cave Environment Advisory Group. He also spent time recording bioluminescence in the main cave. Soon after arriving back in Australia, he kicked off the first course (Insect Structure & Physiology) in the new national curriculum in entomology (Entomology Curriculum Australia, ECA, www.entomology.edu.au).

Lyn Cook had a month-long trip to South America, attending the 4th international conference on southern hemisphere biology "Southern Connections" held in Bariloche, Argentina, and taking part in field work in Argentina and Chile. The Nothofagus (southern beech) forests of South America are home to an interesting array of scale insects, and it was interesting to be able to compare the South American forests with those of New Zealand and Australia. There are so many familiar plant groups shared across these regions that it is easy to see how the paradigm of Gondwanan vicariance gained favour as the explanation for southern hemisphere biogeography.

ARMY MALARIA INSTITUTE (AMI)

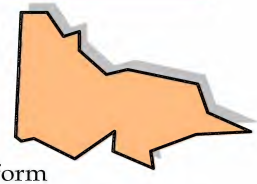
Bob Cooper has been identifying mosquitoes that were collected in Santa Isabel, Solomon Islands, in October 2009, using molecular techniques. This work is the most recent survey conducted as part of AMI's involvement in the Pacific malaria initiative. **Joan Bryan** and **Tanya Russell**, School of Population Health, University of Queensland (SPH, UQ) have spent some time discussing with Bob Cooper the prospects for vector control and surveillance as part of this initiative. In February, **Steve Frances** and **Donna MacKenzie** completed field evaluations at Redcliffe Airport of permethrin treated military shirt fabrics. We again thank Cecily Draper, Moreton Bay Regional Council, for allowing us to use the mosquito laboratory. During February, **Alan Twomey**, BioAust, Brisbane, and **Errol Hassan**, Integrated Crop Management, UQ, Gatton Campus, visited AMI to conduct some laboratory evaluations of potential repellent formulations.

Entomologists at the Army Malaria Institute, from left, back row, Darryl McGinn, Scott Carroll, Steve Frances, and front, Marie-Louise Johnson and Jenella Loye.

In January, **Scott Carroll** and **Jenella Loye**, UC Davis, visited to discuss repellent testing with Steve Frances. The morphological variability of Entomologists is shown in the photo (below), which includes **Darryl McGinn** who was visiting AMI, and **Marie-Louise Johnson**, Pacific Malaria Initiative Support Centre (SPH, UQ), who is based at AMI (photo below).

Jane ROYER and Tony CLARKE
Qld Regional Councillors

VICTORIA



Dear Victorian Members of the Australian Entomological Society,

I would like inform you that it is a huge privilege for me to be appointed recently as Victorian Councillor for the Society. I am quite aware, that in the past few edition of Myrmecia, input from Victorian entomologists was minimal thus I would encourage you to contribute and share your stories. If you didn't received a reminder about the deadline for the last edition, please contact me and I will add you to my distribution list as I am still gathering email addresses of all the Victorian members.

I moved to Horsham last year where I work with the Department of Primary Industries in **Angela Freeman's** group, investigating the impact of elevated CO2 and temperature on insect/virus/plant interactions with the main focus on *Rhopalosiphum padi* (Hemiptera: Aphididae) and Barley yellow dwarf virus in the Free Air Carbon Enrichment facility and growth cabinets.

Piotr TREBECKI (photo next page)

DPI Tatura

Alex Il'ichev and **David Williams** from DPI Tatura attended the 5th Asia-Pacific Conference on Chemical Ecology held in Honolulu, Hawaii, USA in late October 2009. Alex and **Larry Gut** (Michigan State University) co-organised and conducted a full day symposium on "Pheromone Disruption" where **David Williams** presented the opening talk on: "Integrating Lepidopteran pheromone-mediated mating disruption into management of a multi-species pest complex".

Piotr Trębicki, new Regional Councillor from Victoria

Alex Il'ichev was appointed Executive Secretary and **David Williams** was elected as Councillor representing Australia for the Asia-Pacific Association of Chemical Ecologists (APACE). The 7th Asia-Pacific Conference on Chemical Ecology in 2013 will be hosted by Australia (DPI Victoria) in Melbourne. Alex also received an APACE "Certificate of Appreciation" recognising his service and leadership as APACE Executive Treasurer during 2007-2009".

David Williams is leading a national Apple and Pear IPDM project under a program co-ordinated by TIAR. Other DPI Victoria entomologists involved in the first year of the project are **Greg LeFoe**, **Mofakhar Hossain**, and **Kevin Powell**. The project is a collaborative effort between DPI Victoria and Plant & Food Research NZ, with emphasis on establishment of new biocontrol agents for codling moth and woolly apple aphid.

Mofakhar Hossain has recently been appointed a Visiting Research Fellow in the Centre for Plants and the Environment at University of Western Sydney (UWS). He has a collaborative research project with **Robert Spooner-Hart** on "Small hive beetle management using pheromone and attractants- a scoping study".

James Miller from MSU is Visiting Fellow at DPI Tatura until the end of March. Jim is exploring the applicability of the competitive attraction equation as a means of estimating pest population density for Lepidopteran pests in orchards, and quantification of competition between fruit fly traps and baits.

Larry Gut (MSU) is involved in collaborative research with **Alex Il'ichev**, **Joanne Dawson** and **David Williams** under HAL Project: "Towards sustainable pheromone-based IPM in orchards". He will be visiting DPI Tatura mid-March to discuss preliminary results and new experimental design. He will then join **David Williams** and **Jim Miller** to visit the South Australian experimental site established by **Greg Baker** (SARDI) for the CRC Plant Biosecurity project, on eradication of exotic plant pests, led by **Bill Woods** (DAFWA).

DPI Knoxfield, Taxonomy Section

Linda Semeraro is on leave to study full-time through La Trobe University, with a Cooperative Research Centre for National Plant Biosecurity (CRC NPB) scholarship. She is working towards finally completing her PhD thesis on a systematic study of Australian macropsine leafhoppers by the end of 2010. **Mark Blacket**, a molecular systematist ex University of Melbourne, joined our section at the end of last year, conducting morphological and molecular identification of Victorian insects. Over the summer our identification efforts have focused on Queensland fruit flies, and we now employ DNA barcoding as an additional identification tool for this species. **Mali Malipatil**, **Linda and David Williams** completed a revised edition of the pocket guide "Pests of pome and stone fruit and their predators and parasitoids". Mali recently completed a revision of Australian Nysius (Lygaeidae), and from late last year was appointed co-editor of Heteroptera for the journal Zootaxa.

DPI Attwood

In January 2010 Victorian Department of Primary Industries (DPI) Scientist **Kim Andrews** relocated from the Rutherglen Centre in the

North East of the state, to the Attwood Centre near Melbourne.

At the DPI Rutherglen Centre Kim's research broadly involved Hemiptera insect ecology, including the feeding behaviour of the Woolly Apple Aphid and Grape Phylloxera. Kim used artificial diet and Electrical Penetration Graph techniques to investigate pest insect feeding activity and plant resistance mechanisms.

Relocation to the DPI Attwood Centre has lead to a change in research direction, from working with Aphids to working with Dipteran insects, including members of the Culicidae and Culicoides families. The main focus of Kim's research involves taxonomic identification of mosquito species and screening for the presence of arboviruses, particularly Murray Valley Encephalitis. This component of research is supported by the Victorian Department of Health, and contributes to the Victorian Arbovirus Task Force monitoring program focused on the surveillance and research of arbovirus diseases in Victoria.

CESAR (Centre for Environmental Stress and Adaptation Research) at University of Melbourne.

Diversity of insect (OK we know some of these aren't insects but close!) function continues to be used in diverse projects in **Ary Hoffmann's** CESAR. Research on population structure and assessment of phenotypic traits relating to fitness of *Aedes aegypti* is expanding. **Peter Kreisner** is this year's Honours student working on fitness assessment of *Ae. aegypti* infected with Wolbachia and **Heng Lin Yeap** has started a PhD on quality control of laboratory produced benign strains in conjunction with the University of Queensland. **Andrew Weeks** and **Nancy Endersby** continue studies of population structure and gene flow at the microspatial scale with mosquitoes from Vietnam and Australia, in conjunction with colleagues from Queensland. **Jason Axford**, our new research assistant, maintains and experiments on the *Ae. aegypti* colonies for both the Gates Foundation funded project and a CERF grant. Research assistant **Vanessa White** has been looking at whether population genetic markers used for *Ae. aegypti* can also be useful for studies of *Ae. notoscriptus* and *Ae. albopictus*. **Briony Norton** is in the final year of her PhD entitled 'The sanitisation of urban ecosystems: how changes to leaf litter affect invertebrates and ecosystem functions'. She's looking at how removing or altering ground-layer resources such as leaf litter and woody debris (i.e., 'sanitising' urban ecosystems) in order to create 'neat' landscapes, impacts on litter-dwelling arthropods. She is based at the Australian Research Centre for Urban Ecology, but is doing her invertebrate work at CESAR. She's in the midst of sorting through pitfall traps, and is focussing particularly on ants, isopods and millipedes.

Adam Miller is undertaking an investigation of wheat curl mite species biology and its role in the transmission of wheat streak mosaic virus (WSMV). This a major pathogen of wheat in cropping regions of the Americas, Northern Africa, Asia and Europe was first detected in Australia in 2003 and has since had devastating impacts, with many crops sustaining complete loss of yield during the 2005 and 2006 growing seasons. Funded by the Grains Research and Development Corporation this project aims to ascertain crucial biological information of the wheat curl mite (WCM), *Aceria tosichella*, the primary vector of WSMV that can subsequently be used for the implementation of appropriate management strategies. Using genetic applications and a series of laboratory experiments we have shown the Australian WCM to consist of a complex of two morphologically indistinguishable species, only one of which is capable of transmitting WSMV under controlled conditions. Both species occupy similar distributions, occurring throughout the entire Australian wheat belt, and are often found in sympatry. Climate modelling suggests the distribution of WCM is limited by tolerance to heat and desiccation and may extend well beyond the boundaries of the Australian wheat growing regions in eastern Australia. Fine-scale molecular markers and a series of field trials demonstrated that WCM have potentially limited dispersal potential and reproduce by haplodiploidy. These results have implications

for the management of WCM and the associated spread of WSMV within Australia.

Michael Nash is examining initial changes in invertebrate communities to identify target invertebrate species that can be used later to assess adaptive shifts in sub-alpine and alpine ecosystems. As part of the International Tundra Experiment (ITEX), fibreglass chambers that passively warm the air and soil by an average of 0.8-1.4□C were set up in the Australian Alps in 2004. Initial investigation of ground dwelling invertebrates using pitfall traps over 2 snow free seasons has identified limited differences in invertebrate communities due to experimental warming, with site being the main influencing factor. Areas of dead *Poa hiemata* at only one site caused by moth larvae, *Lomera caespitosae* Oke (alpine case moth) and *Oncopera alpina* Tindale (alpine swift moth), highlight site differences, and with less damage in warmed plots suggesting interactions between factors. The paucity of knowledge of invertebrate response/function in alpine ecosystems is presently being addressed. What level of herbivory can remerging plants tolerate from moth larvae and does this impact on future community composition, i.e. under increased disturbance, fire and drought, will plant succession change. Understanding the impact of insects on the recruitment of new plants into a population via seed set is also being examined through the establishment of visitation webs. Exclusion of pollinators and seed predators from selected plant species will help quantify interactions, therefore provide insights into the synchrony between plants and invertebrates. The alpine ecosystem functioning is dependent on plant invertebrate interactions response to influences (e.g. climate) on individual species, hence my involvement in this Australian Research Council funded Australian ITEX project.

Linda Thomson continues studies in pest predator interactions in vineyards focusing on the importance of whole area management and the nature of chemicals in use on the crop. Work in the pest entomology area is continuing in both the research and extension streams. **Sommer Jenkins** and **Angelos Tsitsilas** have completed the first year of a two-year research project examining the role of alternative chemistries and other management options in the control of grains pests. **John Roberts** and **Aston Arthur** are nearing completion of their PhD projects on Lucerne flea biology, and the ecology of Balaustium mites and Bryobia mites, respectively. Work is continuing with DAFWA in understanding insecticide resistance in field populations of an important agricultural pest, the red-legged earth mite. Paul Umina and Stuart McColl continue to be involved in a number of extension and communication activities. This includes the deliver of 'PestFacts South-Eastern', an information service received by agronomists and farm consultants across Victoria and NSW. Free pest identification services have also been offered to farmers and their advisers, along with involvement in numerous workshops, presentations and developing information sheets relevant to IPM.

Balaustium mite (Photo: Sonya Broughton, DAFWA)

Matt Hill has commenced the second year of his PhD, examining the physiology of a range of invertebrate pest species in order construct a framework to examine how climate change may affect their distributions. This work extends on correlative distribution models he built for some earth mite species. The species being used to build the framework include blue oat and red-legged earth mites and green peach and oat aphids. This year will entail extensive field work to assess the microclimates of these species and laboratory work to examine activity thresholds.

The year has started as a busy one for the aquatic bio-monitoring group at CESAR. The group has recently expanded, with several new staff and students joining the team. A number of new projects have also started, involving lots of field work throughout a variety of rivers, streams and estuaries around Victoria. Sara Long joined the group in June 2009 as a research fellow, and she is currently developing new biomarkers in Chironomus and Polypedilum to detect water pollution. She has made excellent progress so far, running a number of range finding tests and getting a GST assay up and running. **Rebecca Brown** is helping on this project as a research assistant. **Kallie Townsend** is working hard on her PhD to investigate the effects of endocrine disruption in aquatic invertebrates. She currently has a large field experiment running using microcosms spiked with 17a-ethinylestradiol, and is also starting some laboratory experiments with chironomids to look at dietary and other factors that may influence sex ratios and fitness in offspring. **Melissa Carew** is forging ahead with her postdoctoral fellowship, using the Bioplex system to develop protocols for rapid identification of chironomids based on DNA. **Katy Jeppe** has also started her PhD, which will investigate the use of genomic biomarkers for measuring exposure to pollutants in chironomids. Matt O'Brien has been co-ordinating a long-term sediment quality monitoring program for Melbourne Water, as well as finalising the results of a project that investigated the effects of PAH's on aquatic macroinvertebrates as a result of the 2009 Victorian bushfires.

Steve Marshall has been working on a project to assess pesticide contamination of urban stormwater and sediments, using field-based microcosms. He has also started work on a project which aims to investigate the impact of phosphorus enrichment on arsenic speciation and its influence on sediment toxicity to native invertebrates. **Bryant Gagliardi** is part way through a state-wide sediment monitoring study, spanning 60 regional sites that combine micro-pollutant analysis, chironomid toxicity tests and field-based microcosms. This information will be used to identify pollutants causing ecological stress in rural Victorian waters. He is also researching the effects of pollution on chironomid larvae mouthparts, and hopes to develop mouthpart deformities as an effective, informative bio-monitoring tool. The seemingly never ending run of field trips for all of these projects has occupied a lot of time for all of the group, and another new research assistant, **Dan MacMahon** has been invaluable, co-ordinating trips and helping out with sample collection. We have also welcomed two new Masters students to our group, **Lee Engelstad**, who is working with Sara on the development of biomarkers in chironomids, and Erin Johnson, who is working with Steve on arsenic speciation in freshwaters.

Linda THOMSON

Monash University

Anna Burns is now a post-doctoral associate at Monash University, researching the potential effects of climate change on the toxicity and yield of cassava (*Manihot esculenta* Euphorbiaceae), which is a staple crop in the tropics of Africa, Asia, the Pacific Islands and the Americas. Being a cyanogenic plant, cyanide poisoning from cassava poses a health risk to the people and animals that rely on it as a large component of their diet. The cyanide concentration of cassava plants is already known to increase in response to drought, which has lead to increased cases of the paralysing condition, konzo, among many African communities.

In her PhD, Anna investigated the diversity of arthropods on box mistletoe plants, compared with the mistletoes' *Eucalyptus* host trees. She found that the density of most arthropod orders was greater on the eucalypt foliage. Twenty-three species of psyllids (Hemiptera: Psyllidae) were sampled from the mistletoes and eucalypt trees, of which 2 are host-specific to mistletoes. In contrast, none of the 42 species of spiders collected from the mistletoe plants and eucalypt trees were specialised to these plant species. This is not surprising, since spider diversity is influenced more by the abundance of prey available in a habitat, than the host-plant species.

Over the extent of the study area (around Holbrook in New South Wales, up to 45 km between sites), the assemblages of psyllids and spiders collected from the mistletoes and eucalypts were very similar. A spatial pattern was observed among the spider assemblages but not the psyllid assemblages. Therefore, the host-plant was the most important factor determining the composition of the psyllid assemblages, at this scale. These findings contribute to other recent mistletoe research, lead by **David Watson** at Charles Sturt University, which points to the importance of mistletoe in supporting the biodiversity and functioning of forests and woodlands.

Piotr TRĘBICKI
Victoria Regional Councillor

WESTERN AUSTRALIA

CURTIN UNIVERSITY OF TECHNOLOGY

Christopher Taylor has now completed his PhD thesis on 'The systematics of the Monoscutidae (Arachnida: Opiliones)' and is now busily working on the Barrow Island project while anxiously awaiting examiner's reports. **Jonathan Majer** is currently celebrating, having completed and stepped down from eleven and a quarter years in the role of head of department. Jonathan's time will now be directed to more interesting matters in the form of entomological research! The entomological group at Curtin has now been expanded with the appointment of **Richard Harris** as a lecturer in ecology and environmental management. Although Richard has been in WA for a few years, he previously worked on invasive insects in New Zealand.

Western Australian Museum

Data capture of the Museum's Hemiptera collection (close to 10,000 specimens) was completed in March thanks to good work on the part of **Evline Berger** who is now giving her fingers a rest.

The family of the late **Kevin Richards** (long retired from the Department of Agriculture's Entomology Branch) has donated his private collection of insects, consisting chiefly of thousands of buprestid beetles, to the WA Museum.

Buprestid beetles – part of Kevin Richards' collection donated to DAFWA. Photo: Pia Scanlon.

University of Western Australia – Centre for Forensic Science

The good news is **Sasha Voss** was granted her PhD and as Dr Voss, has now gone off to get married. Sasha will be working in the Forensic Entomology group over the next 12 months. **Ian Dadour** attended the American Academy of Forensic Sciences meeting in Seattle in March talking on expert evidence and forensic entomology. He then moved to Knoxville Tennessee to teach FBI agents once again (8 years) in the Human Remains Recovery School. **David Cook** has become very involved in the Stable Fly Action Group. This group is lobbying for funding to control the recurrent stable fly problems on the Swan Coastal Plain.

DEPARTMENT OF AGRICULTURE AND FOOD WESTERN AUSTRALIA (DAFWA)

Stewart Learmonth from Manjimup reports that work continues on collating information on pest management for Indonesian potato and cabbage farmers within an ACIAR project. In viticulture, projects on garden weevil and bud mite that are funded by the Grape and Wine Research and Development Corporation are winding up this year. Studies to obtain a minor use permit for a miticide to control six-spotted mite are underway. In the area of deciduous fruit, funding has been provided by the Forest Industry Federation of WA and Fruit West for a

voluntary contribution project that seeks to obtain a disinfestation method for eucalyptus weevil for export apples. Research on managing apple weevil and black scale in olives in a Rural Industries Research and Development Corporation funded project that is run by **Sonya Broughton** is coming to an end this year. Monitoring and recommendations for insecticide action to manage whitefly in tamarillos continues in a 3 year Horticulture Australia Limited funded project.

Modika Perera represented AES at the Science Meets Parliament (SmP) 2010 conference in Canberra in mid March this year. She acknowledges AES for her nomination and for the financial support. As a result of attending this event, Modika has gained professional training in respect to government policy development and Science Communication which she immensely valued and enjoyed. Overall SmP conference offered a unique and valuable perspective on the interference of Science, Policy and Politics at the federal level in Australia. Please see her full report on this conference in this issue. **Modika** encourages other AES members, in particular early and mid carrier researchers to consider this opportunity for this annual event.

Shirani Poogoda is trialling a new fruit fly lure. The Cooperative Research Centre for National Plant Biosecurity female lure project is a collaboration between Industry & Investment NSW and the Department of Agriculture and Food, WA. The project also has funding from Horticulture Australia Limited.

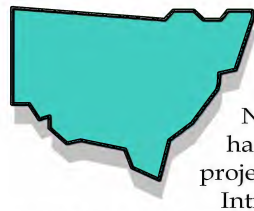
Mediterranean fruit fly,* Ceratitis capitata. *(Photo: Sonya Broughton, DAFWA)

Two lures recipes are being tested. One is a moist gel lure and the other, a dry lure that comes in a granular form, and is meant for more humid climates. Laboratory and outdoor cage trials last year showed promising results. Preliminary trial work has been carried out in Kununurra with native fruit fly species and in Donnybrook with Mediterranean fruit fly (Medfly). Further field testing is scheduled in both areas and analysis of the data will be undertaken in coming months.

Congratulations go to **Darryl Hardie** – (Senior Entomologist at DAFWA) on his appointments as an Adjunct Professor at Murdoch University and Adjunct Senior Lecturer at University of Western Australia.

Modika PERERA
WA Regional Councillor

NEW SOUTH WALES



UNIVERSITY OF NEW ENGLAND, Insect Ecology Lab

Nigel Andrew's lab at UNE has been busy on a range of projects.

Introduction and Extension of IPM in Northern NSW is being funded by the Grain Research and Development Corporation (GRDC). This project aims to assist in the

development and expansion of Integrated Pest Management strategies, including area-wide management, and expertise across the grain growing regions of northern NSW. To this end the project incorporates a pest insect identification service and extension component to help support and improve knowledge in the area of IPM in the northern NSW grain growing region. **Rachel Waugh** and **Nereda Christian** are working to build collaborative partnerships within the grain industry and between key institutional bodies involved in pest identification services and IPM extension activities. Recent activities have included attending a soybean IPM workshop in Casino hosted by Industry & Investment NSW (I&I NSW) and the Queensland Department of Employment, Economic Development and Innovation (DEEDI), a GRDC research update in Toowoomba, the National Invertebrate Pest Initiative (NIPI) workshop held in Canberra and meetings with the Centre for Environmental Stress and Adaptation Research (CESAR) in Melbourne and the Tamworth Agricultural Institute (I&I NSW). Through the continued expansion of collaborations and extension activities the project will assist in the development of an IPM research and communication strategy that incorporates a pest insect identification service with the aim of improving knowledge in the area of invertebrate pest control and IPM in the northern NSW grain growing region.

Mohammad Khusro is a postdoc in the lab with tertiary qualifications in veterinary science and animal husbandry, followed by specialization in the application of quantitative and statistical genetics to livestock breeding programs. In the past few months, I have been involved in a scoping study under the supervision of **Nigel Andrew** at Department of Zoology, University of New England and **Adrian Nicholas** at I&I NSW. The project is funded by Australian Poultry CRC and the main objective of this study is to examine the feasibility of using insects as protein rich supplements for poultry nutrition. This research aims to develop alternative feeding methods for poultry production systems which would replace conventional protein sources like soybean and cottonseed meals usually imported from the United States and Argentina, and are therefore expensive. Currently, he is preparing review articles.

Matthew Binns is doing a PhD on the effects of climate on grassland invertebrate communities (supervised by **Nigel Andrew**, **Heloise Gibb**, LaTrobe Univ., and **David Warton**, UNSW). To do this he is collecting invertebrate samples from a broad climatic range; as far north as the Qld/NSW border, west to Cobar and down to Melbourne. He is looking at *Themeda australis* dominated grasslands and grassy woodlands. He will be assessing diversity in terms of community structure and morphological traits. This will be analysed using recent advances in model based approaches for multivariate abundance data. Over the last few months he has been sorting through samples that were collected in November 2009 and collecting more samples for a March 2010 period.

Thomas Mooney is doing a PhD with University of New England (**Nigel Andrew**) and the Australian Antarctic Division (**Jane Wasley** and **Cath King**). His research is ecotoxicologically based, examining the effects of hydrocarbons on soil invertebrates in sub-Antarctic environments. This is being achieved through a range of experiments examining both community and single species responses to a range of concentrations of hydrocarbon contamination. This research will help to develop guidelines and endpoints for hydrocarbon remediation in cold regions.

Chanthy Pol (supervised by **Robyn Gunning** and **Bob Martin** – Primary Industries Innovation Centre, UNE) has been busy collecting Green Vegetable Bugs and parasitoids in preparation for insect physiology experiments and life history assessments from sites at Breeza and Grafton.

Michelle Yates is a new PhD student in the lab studying cereal crop food webs and the influence of climate change and non-farmed vegetation on them, with particular emphasis on the cereal-aphid-parasitoid interaction in north west NSW. Michelle is co-supervised by **Nigel**

Andrew (UNE), **Robin Gunning** (DPI) and **Jane Memmott** (University of Bristol) and will be visiting each of her supervisors within the next month to go through her plans for the methodology of the project.

THE UNIVERSITY OF SYDNEY, Faculty of Agriculture, Food and Natural Resources

Two PhD students, **Mahmuda Begum** and **Dominic Cross**, have joined the Faculty of Agriculture, Food and Natural Resources at the University of Sydney. Mahmuda will investigate grower attitudes towards augmentative biological control in crop production while Dominic will study management of GM refuges in cotton. **Sarah Mansfield**, **Greg Murdoch** and Dominic recently attended the ASSAB meeting held in Narrabri where they presented a talk and two posters.

INDUSTRY & INVESTMENT NSW

Orange Agricultural Institute

Our Hazard Sites Surveillance project has seen **Peter Gillespie**, **Holger Löcker**, **Rosy Kerslake**, **Chris Bloomfield** and **Cecilia Lawler**, in various combinations, heading up the coast to S.E. Queensland and down to Sydney to monitor for a range of exotic organisms. This project is part of the "Securing the Future: Multiple plant pest Surveillance" program sponsored by DAFF. The team has gathered samples and data on a number of important pests including the cucumber fly (B*actrocera cucumis*) a non-lure responsive species found on the North coast of NSW and SE Qld, spiralling whitefly (*Aleurodicus dispersus*) and melon thrips (*Thrips palmi),* two serious pests of fruit and vegetables currently known from Qld but not yet recorded from NSW and silverleaf whitefly (*Bemisia tabaci* B biotype) for which we now have better distributional data. The peri-urban surveillance activities within the Sydney basin form the core of the project but the North Coast trips provide valuable augmentation. One unwelcome discovery at 3am one morning was a large population of bed bugs (*Cimex lectularius*) in a motel room in Tamworth.

As the overseas representative on the editorial board of the Fauna of New Zealand series, **Murray Fletcher** attended a board meeting in Auckland at the end of April. While there, he celebrated the imminent publication of the latest issue in the series – the Auchenorrhyncha of New Zealand, for which he was coauthor with **Marie-Claude Larivière** and **André Larochelle**.

Murray Fletcher has secured the contract with the Australian Biological Resource Study, Dept of the Environment, Water, Heritage and the Arts, to provide the authoritative taxonomic checklist for the Hemiptera: Auchenorrhyncha (leafhoppers, planthoppers, spittlebugs and their relatives, except cicadas), for the Atlas of Living Australia. The contract provides funding over two years to complete the checklist, including all references, synonymies and detailed distributions and, where possible, provide photographic images of all species. Much of this information has already been compiled and has been maintained on the I&I NSW website over more than 10 years (see http://www1.dpi.nsw.gov.au/keys/auch/index.html).

Elizabeth Macarthur Agricultural Institute

Grant Herron flew to Narrabri on the 15th March where he met up with **Lewis Wilson** from CSIRO Plant Industries. Grant and Lewis then drove down to the Macquarie valley where Lewis participated in a cotton field day outlining silver leaf whitefly control options to cotton growers and consultants. Grant and Lewis then collected cotton aphids and two-spotted mite from cotton farms in the area for Grant's aphid / mite project and then headed north to St George in Queensland to collect more populations for resistance testing. Grant and Lewis encountered the aftermath of the recent floods on the way, being stopped north of Mungindi by a water puddle over the road that went for some hundreds of metres and as far as the eye could see. With help from the local cotton industry development officer, Lewis and Grant by-passed the water to successfully collect aphids and mites at both St George and Dalby, finishing a successful 2009-2010 aphid / mite collecting trip.

CHARLES STURT UNIVERSITY, Orange campus

As **Catherine Gitau** approaches the end of her ACIAR-funded postdoc on Finschhafen Disorder (FD) of Oil Palms in New Guinea, she is burning the midnight oil (no reference to the Minister for the Arts, etc) to complete final reports and a number of publications from the project. The project has been co-supervised by **Geoff Gurr**, **Murray Fletcher** (OAI) and **Charles Dewhurst** (PNG OPRA) with molecular supervision from **Andrew Mitchell**. Fortunately, Catherine's future has been secured for the next three years with her successful application for a further postdoc with **Geoff Gurr**, **Angus Carnegie** (Forests NSW, West Pennant Hills), **Dick Bashford** (Forestry Tasmania) and **Robin Bedding** (CSIRO). Catherine will be helping protect pine plantations from exotic pests and climate change. Research will quantify the magnitude and geographical scope of disruption to the existing Sirex control program caused by Ips bark beetle. The research will also elucidate the relationships between Ips, Sirex wood wasp and their associated fungi. The project is funded by a grant from the Australian Research Council (ARC) Linkage Program with the National Sirex Co-ordination Committee (NSCC) the main partner organisation.

A nice side project from the FD project is being undertaken by **Deane Woruba**, who has joined the group in Orange from PNG OPRA in West New Britain funded by a **John Allwright** Fellowship. Deane has been working on the fungal pathogens of *Zophiuma lobulata*, the lophopid planthopper which is associated with FD. Deane has just returned from a very successful trip to New Britain and Milne Bay with forty samples of fungi isolated from adults and nymphs of *Z. lobulata* to be investigated as potential biological control agents of the planthoppers. He is now working with Michael Priest at Orange Agricultural Institute to purify and grow colonies suitable for identification. Whatever they turn out to be, there will be new host records and new distributional records for the fungus – possibly new species too. We haven't seen much of **Geoff Gurr** in Orange in the last few months with intensive activity in Thailand, Vietnam and China, where Geoff is working on a big project addressing resurgence of rice pests. Brown planthopper in particular is exhibiting high levels of insecticide resistance and formerly resistant varieties of rice have 'broken down'. Ecology to the rescue! Working with the International Rice Research Institute and funded by the Asian Development Bank, ecological engineering (the use of plant

Geoff Gurr with Chinese and Thai collaborators at an ecological engineering site north of Bangkok. **Tridax procumbens** ***in foreground provides nectar for natural enemies of rice pests.***

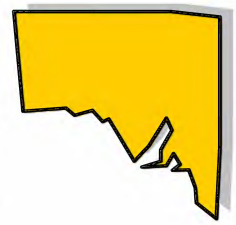
biodiversity to enhance natural enemy activity) has really taken off.

Congratulations to **Kris LeMottee** and **Willie Heimoana** on submitting their respective PhD theses. Both have been working with Geoff in a collaborative, HAL-funded project with **Leigh Pilkington** (Industry and Investment NSW) on biological control for vegetable pests. Willie is now working with Geoff and **Olivia Reynolds** (I&I NSW) on biological control of Queensland fruit fly.

Murray FLETCHER and Sarah MANSFIELD
NSW Regional Councillors

SOUTH AUSTRALIA

Mosquito Research, Sansom Institute, University of South Australia



Katherine Leach is the new PhD student in the lab, commencing her work on the evolution of mosquito egg desiccation resistance. She will focus on two container-breeding species. PhD student **Aishah Azil** recently returned from a month of fieldwork in Cairns (ably assisted by Adelaide team members and JCU's **Sharron Long**) where she has been assessing surveillance methods for the dengue vector *Aedes aegypti*. After a few weeks back in Adelaide Aishah has just flown off again to Kuala Lumpur to present a paper at the Parasitology and Tropical Medicine meeting there, before doing more fieldwork on dengue surveillance at Petaling. **Natasha Wilson**, along with assisting Aishah in the field has been working hard on *Aedes aegypti* population modelling work for the Eliminate Dengue program headed by Scott O'Neill (UQ).

Christie Bader's studies of salt marsh mosquito physiological ecology continue, along with her work on *Aedes aegypti* mating performance for a collaboration with Ary Hoffmann and others (Uni Melb). **Samantha Williams** continues to manage the northwest Adelaide mosquito surveillance program, which has seen the usual influx of saltmarsh mosquitoes invading the suburbs.

Craig Williams and **Stephen Fricker** recently met with the SA Health Department to discuss mosquito-borne disease early warning systems; a meeting that Stephen squeezed in between his usual River Murray surveillance trips. Craig is shortly heading to Auckland to present research data on Australian saltmarsh mosquito egg survival to Biosecurity NZ, as part of their eradication program for that species.

South Australian Museum

It has been a relatively busy time for us here at the SA Museum. The new Biodiversity Gallery was opened on 11th February by the Premier, Mike Rann. Feedback has been very positive. Many insects are incorporated into the exhibits but there are still many more insects and arachnids to go in.

In February, our Director Suzanne Miller, launched **Archie McArthur's** book "A guide to *Camponotus* ants of South Australia". **Steve Shattuck** (CSIRO), **Helen Eddy-Costa** (CSIRO) and **Ellen Schluens** (James Cook) visited Archie during the week of the book launch to work through the new *Iridomyrmex* key and to talk *Camponotus*. Archie continues his work on *Camponotus* of the Pacific Islands.

In the latter part of 2009 **Peter Hudson** and Murray Potter (Massey University, NZ) spent three months down on Macquarie Island undertaking some pre rabbit-control invertebrate sampling for TASPAWS. Samples are expected to arrive in Adelaide in the near future.

Mark Stevens was down in the Dry Valleys of Antarctica this summer (Dec 09) in the 3rd year of a collaborative project (closely linked to the International Polar Year) which brought together researchers from universities in NZ, Australia, UK, US, South Africa, China, Spain, Austria, and Germany. The project aimed to examine what biological or environmental factors drive terrestrial biocomplexity at any chosen location in the Ross Sea Region of Antarctica; see the International Centre for Terrestrial Antarctic Research website for more details [http://www.ictar.aq/].

Jan Forrest "retired" in March this year after an enormous 47 years of service with the Museum. She continues her connection with the Museum as an Honorary Associate and plans to continue her work on the Biodiversity Gallery and butterflies.

Lars Hendrich (Zoologische Staatssamlung, Munich) visited **Chris Watts** in January to discuss their revision of the dytiscid genus *Exocelina*. In November 2009 **Chris** had a successful trip to Tasmania where he visited Simon Grove and Lynette Forster (Forestry Tasmania) in search of scirtid larvae.

Congratulations are in order for **Eric Matthews** & Patrice Bouchard for winning the Whitley Book awards 2009 Certificate of Commendation for their book, "Tenebrionid beetles of Australia".

Robert Lavigne is in the process of revising the genus *Cerdistus* (Diptera: Asilidae) in Australia. In this connection last June he visited the British Museum of Natural History in London and the Paris Museum of Natural History to examine types. **Steve Richards** has returned from another successful collecting trip to PNG with many interesting odonates.

Barcoding

Significant advances have been made on several fronts with barcoding (part of a BOLD project) *e.g.* **Mark Stevens** – Collembola, **Peter Hudson** – Pogoninae, **Peter Lang** – Buprestidae, **John Weyland** – Formicidae.

Peter Hudson recently turned up a specimen of the rare beetle genus *Omma* during survey work on Eyre Peninsula. **Jo Wood** has been kept busy on contract databasing more of our Scarabidae, Carabidae and Hemiptera. **Darryl Hincks**, who has been databasing our ant spirit collection for several years, has just passed a milestone of 2 000 jars (~ 28 000 vials of ants!!). Any guesses on the number of ants?? **Mike Moore**, a volunteer at the Museum, has been working on our Hepialidae collection. So far he has sorted and unit trayed the genus *Oxycanus*.

The University of Adelaide

In the last two months, two students have been awarded their PhDs: **Tessa Bradford** for her thesis on modes of speciation in subterranean diving beetles in Western Australian calcrete aquifers, and **Renate Faast** for her thesis on pollination and reproductive success of *Caladenia* orchids in the Adelaide Hills.

Andy Deans from the Department of Entomology, North Carolina State University, visited **John Jennings** for 2 weeks in February to discuss their joint ABRS project on evaniid wasps**. Andy Austin** presented a seminar "Leveraging ontologies to transform insect taxonomy and phylogenetics" to members of the Australian Centre for Evolutionary Biology and Biodiversity. Andy and John also went on a collecting trip to the mallee region of SA and Victoria.

In early April Andy, **Steve Cooper** (SA Museum), **Mark Harvey** and **Bill Humphreys** (WA Museum) ran a one-day workshop for industry representatives, key government officers and private environmental consultants on stygofauna research relevant to environmental monitoring of groundwater systems in WA.

Mohammad Javidkar has recently arrived from Iran to start a PhD with Andy and Steve Cooper on the diversity of troglofauna in WA limestone calcretes. **Andy Austin** and PhD student **Kate Sparks**, who is working on the systematics of *Monomorium* ants, attended the annual Taxonomy Research & Information Network (TRIN) meeting in Adelaide after Easter.

South Australian Research and Development Institute (SARDI) Entomology

The SARDI Pine Aphid Biocontrol Team (**Richard Glatz, Bill Kimber, Gabriella Caon** and **Daniel Roocke**) recently obtained permission to release the braconid wasp, *Diaeretus essigellae* Starý & Zuparko, as a potential biological control for the Monterey Pine Aphid, *Essigella californica* (Essig). The aphid which is endemic to the eastern USA, was first discovered in Australia in 1998 and is now considered a major pine forestry pest across all pine-growing regions. In 2005, SARDI began a project to import the parasitoid into quarantine facilities at Waite, in Adelaide. Host-specificity

Glenys Wood presenting Revegetation outcomes at the National Landcare Forum field trip to the Northern Adelaide Plains

testing was conducted against 8 non-target aphids and showed the wasp was highly specific, as expected. In the last few months, about 15 individual releases have been made in Qld, NSW, Vic and SA. It is hoped that good numbers of *D. essigellae* will be located in pine plantations as aphid populations increase during spring.

Female* Diaeretus essigella *(Braconidae: Aphidiinae) on needle of* Pinus radiata*. This parasitoid was recently released in Australia to target the exotic Monterey Pine Aphid* (Essigellae californica*). Photograph: Gabriella Caon, SARDI Entomology.

Glenys Wood and **Helen DeGraaf** from the SARDI Entomology unit hosted a farm walk as part of National Landcare Forum Field Trip to the Northern Adelaide Plains in March 2010. Glenys presented research outcomes at their major 'Revegetation at property scale' research site, where endemic plant species are successfully being used on commercial horticulture properties to suppress crop pests and weeds and provide refuge for natural enemies.

Joanne Kent has continued collecting ants from South Australia for the tramp ant surveillance project.

Joanne KENT
SA Regional Councillor

TASMANIA

University of Tasmania, (School of Agricultural Science and TIAR)

Geoff Allen and **Paul Walker** continued their involvement in several research projects on

forestry and horticultural pests. Pheromone traps baited with a new, improved synthetic pheromone formulation for monitoring autumn gum moth (*Mnesampela privata*) have been set out in forestry plantations across the State. Honours student **Raylea Parr** has almost completed her thesis on aspects of the biology of the parasitoid *Cotesia urabae* while **Stephen Quarrel** is making good progress on his PhD thesis on European earwigs. **John Madden** visited the University in January and donated various books and papers of historical interest. **John Hunt** (University of Exeter, UK) visited Tasmania in April to collect more field crickets for his evolutionary biology studies.

Tasmanian Museum and Art Gallery (TMAG) and other news

Several entomologists associated with TMAG (**Cathy Young, Dave de Little, Abbey Throssell, Ruth Mollison**) together with others participated in the Aussie Bush Blitz program in Tasmania in March. Reserves at 17-Mile Plain near Montague, the Vale of Belvoir, Flat Rock, Egg Islands, Porters Hill and Murphy's Flat were sampled for biodiversity with a view to finding and describing new species. The weather was kind and many plant and animal specimens were collected.

L to R, Dave, Ariel, Claudio en route to inspect Hastings Caves during a break in collecting.

David de Little also reports that Chilean entomologists **Claudio Goycoolea** (CPF-SA, Los Angeles) and **Ariel Sandoval** (SAG, Santiago) visited Tasmania to collect cold tolerant mymarid egg parasitoids (*Anaphes* spp.) of Eucalyptus Snout Weevil (*Gonipterus scutellatus*) in November 2009. ESW is a major pest of *Eucalyptus globulus* plantations in Chile and the already established parasitoid, *Anaphes nitens*, is not effective in plantations in the cooler regions of Chile. David hosted the visit and collections of ESW eggs were made throughout the eastern part of Tasmania concentrating particularly in the north-eastern highlands. Good emergence of parasitoids occurred from most collections and parasitoids were successfully transported back to Chile where there will be one generation of laboratory rearing before field release.

Paul WALKER
Tasmania Regional Councillor

NEWS FROM AFFILIATED SOCIETIES

Entomological Society of Queensland

At the AGM on March 8 2010 Chris Lambkin (QM) gave the Presidential Address titled 'Large Scale Biodiversity Surveys including Invertebrates: The Future for Taxonomy?' At the April General Meeting on Monday 12, Dr Nancy Schellhorn (CSIRO) spoke on "Landscape Scale Pest Management in Vegetable Crops".

The 17th BugCatch was held at the Bunya Mountains NP from 26-28 February. Many years ago the society presented two display drawers of insects for the Bunya Mountains National Parks Information Office. 17 members and visitors including Bryan Cantrell, Peter Hendry, Chris Lambkin, John Moss, Noel Starick, Fede Turco; Wes Jenkinson; Joshua and Jeff Barrie; Paul Priebbenow, Zara Ludgate and Jason Hall; Alberto Guanilo; and Peter Gillespie, Holger Loecker, Chris Bloomfield, and Cecilia Lawler collected insects to upgrade the deteriorated display as well as supply a list of insects seen and collected. Unfortunately we had intermittent showers, rain and strong winds, low cloud and mist. Collecting concentrated on Mt Kiangarow with butterflies, some flies, carabid, passalid and bark beetles, bush cockroaches, and a mountain katydid recorded. Peter Hendry's light sheet at Burton's Well was successful, especially Saturday night in dense mist with large numbers of moths including nine different species of Hawk Moth (Sphingidae), Anthelids,

The light sheet on Friday night, watched by Peter Hendry, Cecilia Lawler, Alberto Guanilo, Peter Gillespie, and others.

Saturday night's light sheet in the mist, with Noel Starick, Zara Ludgate, Wes Jenkinson, Joshua Barrie, Bryan Cantrell, Jeff Barrie, and various moths. Photos: Chris Lambkin.

Arctiids, Geometrids, and Noctuids noted.

The 2010 Council consists of President Matt Purcell, Senior Vice President Lyn Cook, Junior Vice President & Permit Officer Chris Lambkin, Treasurer Desley Tree, News Bulletin Editor Justin Bartlett, Secretary Judy King, Australian Entomologist Editor Bert Orr and Business Manager Geoff Monteith. Councillors Richard Bull, Geoff Thompson, Fede Turco.

The 2010 General Meetings will be held the second Monday each month at 12pm in the conference Room, CSIRO Long Pocket, 120 Meiers Rd Indooroopilly and include:

Monday May 10 Dr. Martin Shivas (BCC – Mosquito Management Group) "The biology of Brisbane's mangrove-breeding pest midge Culicoides ornatus (Diptera: Ceratopogonidae)"

Monday June 15 Notes & Exhibit
Monday August 16
Monday September 13
Monday October 11
Monday November 8
Monday December 13: Notes & Exhibit + 5pm meeting followed by Christmas BBQ
Visitors Welcome.
See all the latest news on our website:
http://www.esq.org.au/

Chris LAMBKIN

THE POSTGRAD PATCH

Hi postgrads! First up, mark the 26 – 30th September in your diaries – it's the AES Conference in Perth (Swan Valley, wine…woo-hoo!!), and this year there will be an exciting student event to encourage your participation, as well as the usual great prizes for student papers and posters. Note that if you are an AES member, registration is heaps cheaper.

Now, let's talk about motivation, because I haven't met a single postgrad who hasn't had to deal with this issue. Your postgrad study is all about self-motivation, which I think is one of the biggest challenges faced during candidature. One quick Google revealed a bunch of blogs dedicated to motivation, or more commonly, lack thereof. A further Google revealed that enormous amounts of research have been devoted to it. Before you strap yourself in for the postgrad marathon, face facts - you will go through periods of furious high-achieving pace, regular plodding along pace, and then utter depressive slumpishness, where you just sit at your desk and facebook/ eBay/ twitter/ do nothing but stare at the wall. Admit this is going to happen, recognise when it happens, be prepared for it, deal with it (if you can), and move on.

You will know when your motivation has left you. When it happens it's time to stop and assess what might be causing it. Is your work not challenging you right now? Are you not getting any recognition? Not feeling confident you can complete? General self apathy and boredom? No support from supervisor/ family/ mates? Don't understand your analyses? Family bereavement? All sorts of things can result in a lack of motivation.

Sometimes you can feel totally overwhelmed by the amount of work you have to do, and you just don't know where to start. You could start by breaking the work down into achievable chunks. Then, each day, make a list of tasks that contribute to the chunk. Make sure you tick each task off. Sometimes, each task might only take a few minutes, others may take longer, but just keep moving through the list even if you do only one task per day. I experienced one whole year of extreme low motivation, where I was plodded along at glacial pace (which was all I could manage), but that constant plodding was finally rewarded with a chapter and resulting publication.

If your lack of motivation is caused by sheer exhaustion, you might be due for a holiday. Take a break – you are entitled. Full-time scholarships may stipulate a number of weeks per year to be taken as holidays. Don't forget about PhD induced depression, which is also very real. If you think you are suffering from depression, visit your doctor or uni counsellor quickly. You may have some sick-leave entitlements which allow you to take time out whilst receiving stipend to assist recovery.

Doing something simple may be enough to get back on track. Just do something except sit there like a wart. You could go for a walk, update your endnote library, get a nice cup of tea and go read that article you keep meaning to read. Take control of yourself. Sometimes, a stern talking to yourself helps a lot...'Pull your finger out Anderson!' sometimes works for me. Listen to Christina Aguilera's song 'Fighter', cause it'll make you that much stronger. Watch 'Rocky 6'…come on… if Sly can single-handedly take on whole armies and systematically destroy them, you can write a thesis.

Apparently by rewarding yourself for an action, you can create motivation to repeat the action. You could make that action as small or as large as you like, maybe finishing data collection, writing three sentences or getting through a painful supervisory meeting. Depending on the size of the action, the reward could be as small as a trashy magazine and a coffee, or as large as a day off getting a pedicure and massage (OK, they're my rewards, but you get the drift!). In this way, the motivation to complete what is often a painful task is rewarded with something pleasurable. This is also called me-time, where you can quickly recharge your batteries. Do not feel guilty, or think about your study during your 'me' time. You will work enough hours during your study to totally justify me-time anyhow.

Stay away from people that irritate and depress you, like really high-achieving postgrads whose progress is miraculous and they love rubbing it in…ew! Instead, surround yourself with motivated, inspirational people and build a relationship with them. Finding a mentor you respect can help, because their advice can be incredibly stimulating. You could also get involved in activities in your school or department by giving lectures and tutoring undergraduates. Being asked questions about your study might spark your excitement as you explain what about your topic excited you enough to study it in the first place. Giving talks to primary school kids about your work can also be extremely rewarding, but I'm lucky – kids love bugs!!

Sometimes, what is causing your lack of motivation is much more complicated. Letting your supervisor (or counsellor or research monitor etc.) know you are having difficulty is very important, because they can help you make your decisions. Sometimes all you need is a meeting which sorts out your problem and you can move on. You can discuss what is achievable in the time you have left – maybe your PhD is actually five PhD's! Maybe you can drop a chapter that's giving you grief if it isn't going to add anything to the overall picture. Your PhD is where you are supposed to make those kind of justified calls. You may need an extension, or an official leave of absence. You do have options, and remember that your supervisor as well as the university want you to finish (the uni gets paid a bunch of government money only after your PhD is conferred). If you truly hate what you are doing, perhaps you should rethink your goals. Maybe you could downgrade to a Masters? Leave your Honours for another year? Maybe that PhD is not for you right now? Sometimes making these decisions is a god-send, saving you so much time and angst.

For some people, keeping an end-point in mind (because you can't always see it!), helps to maintain the drive to complete. Successful completion must be one of the main motivators during postgrad study...actually looking forward to handing in the book and graduating (despite having to wear a hat that will clash with every shoe I own!). If you are close to finishing, look to that completion date and do everything in your power to stick to it. I am becoming weary of the 'So, when will you be finished?, that by Joe, I will

be done one way or another on the 25th August, 2010.

To that end, this particular motivator is very important to me right now. I found this right before I started and it's a little daggy, but what do you expect coming off a nutri-grain box?

Signs of an Iron Man Checklist

Have you set your sights on one dream? (der…PhD)

Can you feel the adrenalin kick in? (Yep – especially when I get that grant application to the post office for a 4.59pm post-mark on the due-date)

Hear your heart pound? (Oh yeah – this happens every time I run across campus for a meeting I am already 10 minutes late for)

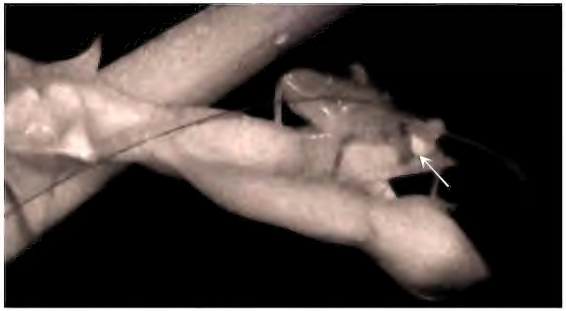
Smell victory in the air? (25th August, people….!)

Or, you could take a leaf out of the book of Nike, and…JUST DO IT!

Kylie ANDERSON
Postgraduate Councillor

ENTOMOLOGY IN THE NEWS

Orthoptera, a new order of pollinator



Glomeremus *sp. foraging on* A. cadetii *flowers and carrying pollinaria (Po) on its head (picture from video captured with the night-shot option) by Claire Micheneau et al. (2010).*

A new, undescribed species of cricket (Gryllacrididae, Orthoptera) recently made the news. The raspy cricket was filmed pollinating an orchid, *Angraecum cadetii*, which is self-compatible, but requires a pollinator to achieve fruit set. Pollinaria of the orchid became stuck to the head of the crickets as they retreated from flowers. The discovery by Claire Micheneau and others was reported in the Annals of Botany (2010, vol. 105: 355–364).

The orchid is endemic to islands in Mauritius and Reunion (Mascarene Islands, Indian Ocean). The flowers are atypical for the genus, which are short-spurred. The crickets are nocturnal foragers, reaching flowers by climbing up the leaves of the orchid or jumping across from neighbouring plants. The crickets showed fidelity to a site, visiting the same patch of plants night after night.

Chameleon grasshopper

Catalyst, 15/04/2010

http://www.abc.net.au/catalyst/stories/2873811.htm

And another Orthopteran story, though this one features a grasshopper. Catalyst recently aired a short snippet on *Kosciuscola tristis* Sjöst, in its Animal Action section. *Kosciuscola tristis* has a restricted range above 1600 m in the Australian Alps. This grasshopper is the only species that changes colour in response to temperature. Only the males change colour, they are dark, almost black, when cold and turn a bright turquoise blue colour within thirty minutes of exposure to warmth (temp > 25°C). Kate Umbers from the Department of Biological Sciences at Macquarie University is studying the function of colour change in the chameleon grasshopper. Originally it was proposed that the colour change provided a thermoregulatory advantage but Kate's research is showing that this is unlikely. Instead,

she proposes that that colour change may have a signaling function important in male combat. This summer in the alps, Kate has conducted a multitude of behavioural experiments to test her hypothesis and will publish those results over the next few months.

Chameleon grasshoppers (*Kosciuscola tristis *Sjöst). Photos: Kate Umbers

ENTOMOLOGIST SEEKING...

...THYSANOPTERA

Thrips predatory on mites

Large populations of leaf-feeding mites are commonly accompanied by a predatory thrips that has a more-or-less white body with three dark marks on each wing – the six-spotted thrips. These thrips have been found on the leaves of plants as different as corn, citrus and field beans, but there is no guarantee that the common species in Australia really is the one recorded, the American *Scolothrips sexmaculatus*. Moreover, from two widely separated localities in New South Wales, a single female of a very different *Scolothrips* has been collected, both from "prune leaves", with a much darker body but similar wings.

Scolothrips sexmaculatus ***present in Australia, or is it? Photo: Jack Kelly Clark, IPM at University of California***

Predatory thrips of this genus are certainly widespread on crops across Australia, although apparently not on native plants. I am trying to establish how many species are involved, their host associations, and their countries of origin. Therefore, if you notice any thrips in association with mite populations on any of your crops, please collect them (95% ethanol is best, but vodka and "bundy" have both proved very satisfactory, although rather less useful for DNA studies).

Parallel to such field collections, Mark Hoddle, at Riverside, California, has agreed to try to rear populations of *Scolothrips*, to see if temperature and/or prey consumed affect the body size and body colours that museum taxonomists have used to distinguish species during the past 60 years. We find it curious that the identity of such a widely quoted predatory insect on crops should continue to be in doubt, despite published ecological studies (for which no voucher specimens were retained).

Laurence MOUND

Laurence Mound can be contacted at Laurence.Mound@csiro.au

ENTOMOLOGIST SEEKING.....ASSISTANCE

Methods for collecting, preserving, and studying insects and allied forms

With stocks getting low, the Society is preparing to update this popular book. **Murray Upton** has offered to help in this project and would appreciate hearing from anyone who has any ideas as to what techniques or practices could be usefully added or mistakes that should be corrected. Murray can be contacted at jackary@bigpond.com

Biocontrol Disc Offered

Bugs for Bugs produced a 20 minute-long DVD sometime ago featuring the positive impact of biological control in citrus crops. The disc, **BEST FRIENDS NATURAL ENEMIES**, 2nd edition, expanded on the first version produced in 1989, and shows the various components of classical biocontrol for IPM including mass rearing and release of beneficial insects, monitoring for both pests and beneficials, and cultural practices. The material also highlights the complexities of decision-making relative to research for implementing IPM.

Dan is working on a 3rd version and is prepared to supply free copies of the 2nd edition DVD (retails for A$22) to interested parties in exchange for suggestions and other feedback.

If interested, contact Dan Papacek, Bugs for Bugs, Bowen St., Mundubbera, QLD 4626, AUSTRALIA.

INTERESTING WEB-SITES

WHAT BUG IS THAT?

This Australian web-site provides identification keys and information to the 600+ insect families of Australia. The web-site is part of the Taxonomy Research & Information Network (TRIN), whose aim is to address critical gaps in taxonomic knowledge of key Australian animal and plant groups. The site features colour photographs and identification keys to families using either Lucid or dichotomous keys. The authors feature a who's who of Australian insect taxonomists, and the keys are aimed at an advanced undergraduate or early postgraduate level. Included is information such as distribution, references and links to other useful sites. http://anic.ento.csiro.au/insectfamilies/

ARTHROPOD DISEASES DATABASE

Fifty five years of diagnostic investigation and research results on dead, diseased, or living arthropods has been compiled into a DATABASE ON ARTHROPOD DISEASES. Founded on work conducted at the Institute for Biological Control, Darmstadt, Germany. The databse features German and English versions, and comprises about 450 arthropod species, mainly insects, from 21 arthropod orders, the diagnosed arthropod pathogens and causative agents, and the origin of the accession. All scientific nomenclature is kept current, along with important synonyms. The diagnosed pathogens belong to five groups: viruses; bacteria including rickettsiae; fungi (now including microsporidia); protists; and, nematodes.
http://tinyurl.com/yg5lbt4

COMING EVENTS: AUSTRALIA 2010

AUSTRALIAN ENTOMOLOGICAL SOCIETY'S 41st AGM & SCIENTIFIC CONFERENCE

Entomology for Australia's Future
September 26-30 2010
Perth, WA

The Organizing Committee, Sonya Broughton, Modika Perera, Maria José de Sousa Majer and Jonathan Majer invite you to the 41st AGM and Scientific Conference, which will take place at the Vines Resort in the Swan Valley, just north of Perth.

Our conference logo is the Western False Saturn Moth or Dryandra Moth Carthaeidae, *Carthaea saturnioides*. Feeding on Grevillea and Banksia species, the moth's activity season is August to December, so you may have a chance to see it in its native range.

The conference will have five themes:

* *Invasive species and biosecurity*
* *Threats to biodiversity and their amelioration*
* *Food safety*
* *Insect biology and ecology*
* *Systematics and taxonomy*

There will also be a half-day mid-conference tour of the Swan Valley. This relaxed region is where you'll find rolling vines, meandering waterways and lush natural bushland, as well as award winning wineries, breweries and food producers. As Western Australia's oldest wine growing region, many vineyards are still owned by descendants of European emigrants. Many wineries offer cellar door tastings, or if you're partial to a pint, there are four microbreweries offering award winning drops.

We look forward to seeing you over here in the West.

www.aes2010.org/

12TH IUPAC INTERNATIONAL CONGRESS OF PESTICIDE CHEMISTRY

Chemistry for a Sustainable World
4th - 8th July 2010
Melbourne, VIC

Scientific Topics for Environmental Fate and Safety Theme

- Risk Assessment and Risk Mitigation to protect environmental quality and human health
- Pesticide use to control invasive species and to protect endangered species
- Climate change and GMO crop effects on pesticide use and risk scenarios
- Advances in simulation of pesticide fate and transport
- Degradation, transformation, and sorption processes in air, water, soil and biota
- Advances in environmental sampling methods and analysis technologies
- Ecological effects testing for tropical regions
- Risk assessment tools for developing countries
- Advances in pest management technologies – updates and environmental impacts

For further information:
www.iupacicpc2010.org
Email: iupac@asnevents.net.au

ECOLOGICAL SOCIETY OF AUSTRALIA ANNUAL CONFERENCE

6-10 December 2010
Canberra, ACT
'Sustaining biodiversity – the next 50 years'

The 50th anniversary of the founding of the Ecological Society of Australia provides a timely platform for retrospective and prospective, considerations of ecology in Australia. A series of themes will focus on the challenges that will be faced by Australian ecosystems over the next 50 years, and the way that our science will need to adapt to meet these challenges. We will take a

long term perspective of ecology in Australia and engender a sense of urgency to consider how ecologists can provide solutions to those problems with which we are now familiar, and those on the horizon.
Call for abstracts closes 30 July 2010.

http://www.esa2010.org.au/

COMING EVENTS: OVERSEAS 2010

17th AUSTRALASIAN WEEDS CONFERENCE

Christchurch, New Zealand
26 - 30 September 2010

The conference will now feature a special workshop on Invasive Plant/Weed Diagnostics: Current and Future Trends in Identification, Taxonomy and Genetics.

Registration now open.

www.17awc.org/index.php

IOBC/WRS Working Group INTEGRATED PROTECTION OF FRUIT CROPS

12-17 September 2010
Tremiti Islands, ITALY

Info: C. Ioriatti, Istituto Agrario San Michele all'Adige, Plant Protection Dept., Via Edmondo Mach, 2, I-38010 S. Michele all'Adige (TN), ITALY.
Fax: 39-0461-615 500.
Phone: 39-0461-615 514.
Email: Claudio.Ioriatti@iasma.it

8TH INTERNATIONAL SYMPOSIUM ON FRUIT FLIES OF ECONOMIC IMPORTANCE

12-17 September 2010
Valencia, SPAIN

The purpose of the Symposium is to bring together academic, industry, research and action people from the all over the world to discuss the various aspects of fruit flies and recent developments related to Pest Management Strategies. The meeting will encourage cooperation between participants, contribute to spread new findings, promote their practical use and highlight research needs.
www.fruitflyvalencia2010.org

BIOLOGICAL CONTROL FOR NATURE CONFERENCE

3-7 October 2010
Northampton, Massachusetts, USA
Biological control of pests in forests and associated habitats

This meeting explores the benefits of classical biological control for the control of invasive insects and plants in natural forests, and associated habitats such as wetlands, grasslands, and deserts. Applications to islands and other natural systems will also be included. The meeting will not address other forms of biological control (e.g., augmentation, conservation, biopesticides), nor will it address use of biological control in plantation forestry. The meeting will appeal to biological control scientists, conservationists, invasion biologists, and land managers.

Email: MHoddle@ucr.edu.
Phone: 1-951-827-4714.
www.biocontrolfornature.ucr.edu

ENTOMOLOGICAL SOCIETIES OF CANADA AND BRITISH COLUMBIA JOINT ANNUAL MEETING

31 October - 3 November 2010
Vancouver, BC, CANADA

The 2010 JAM will take place at the Coast Plaza Hotel in Vancouver. The meeting theme will be "Communication". No further details available at present.
www.sfu.ca/biology/esbc/meetings.html

ENTOMOLOGICAL SOCIETY OF AMERICA ANNUAL MEETING

12-25 December 2010
San Diego, CALIFORNIA, USA

The ESA is holding it's 58th Annual Meeting in San Diego, California. The theme of the meeting is Entodiversity: Disciplinary, Biological, Geographical.
www.entsoc.org/am/cm/index.htm

2011

4th ASIAN CONFERENCE ON PLANT PATHOLOGY and 18th BIENNIAL AUSTRALASIAN PLANT PATHOLOGY

26-29 April 2011
Darwin, NT, AUSTRALIA
"New Frontiers in Plant Pathology for Asia and Oceania"

Info: Conference Logistics, PO Box 6150,
Kingston, ACT 2604, AUSTRALIA.
Fax: 61-2-6285-1336.
Voice: 61-2-6281-6624.
Conference@conlog.com.au.
www.appc2011.org.

SOC. FOR ECOLOGICAL RESTORATION INT. WORLD CONF. ON ECOLOGICAL RESTORATION

August 21-25 2011
Yucatán, MEXICO
www.ser2011.org/en/

SOCIETY NOTICES

The Phil Carne Prize (formerly AES Student Award)

The Society's Phil Carne Prize is aimed at fostering high quality entomological research in young scientists. The name of the prize celebrates contributions made by Dr Phil Carne to the science of entomology and the Australian Entomological Society.

The prize is open to any honours or postgraduate student enrolled in an Australian University, either full-time or part-time, who has not submitted their thesis by the closing date. Entrants do not have to be members of the Australian Entomological Society.

Entries for the prize should be in the form of a scientific paper that deals with research on any entomological topic (or allied group of terrestrial organisms such as mites or spiders). The paper can be in the form of a scientific manuscript ready for publication, a paper that has been accepted for publication or a paper published since the beginning of the previous year to the closing date, but must result from the student's higher degree studies.

Entries are to be the sole work of the entrant, apart from the normally accepted input of academic supervisors, and are to be based on work undertaken while enrolled as a student. They will be judged on their overall scientific merit by a committee of at least three people to be appointed by the Society's President.

Three copies of entries must be submitted to the Secretary of the Society by the closing date (31st July in the year of the award) and be accompanied by a completed application form (see below). The Society address can be found at www.austentsoc.org.au under Society Information.

The prize will be in the form of a certificate and will also include cash remuneration to the value of $300. The winner will also be invited to present their paper at the Society's Annual General Meeting and Scientific Conference, and will receive a maximum of $1,000 towards

conference expenses (registration, travel, accommodation) on receipts.

2010 Illustration and Photographic Competition

A competition to encourage and recognise high standards of entomological illustration

In conjunction with the Society's Annual Scientific Conference and AGM, the Society invites unpublished entries to this competition which will be judged and displayed at the Conference in Darwin in September 2009. The competition is open to members and non-members of the Society who are not employed or contracted as professional illustrators for fee or reward.

Entries, up to three per entrant, must be whole body (dorsal or lateral views) taxonomic illustrations of insects or other invertebrates. The mounted illustrations should not exceed 21 x 30cm (approximately A4 size) and must be suitable for reproduction after reduction by 50%.

Please note that these conditions will be strictly applied this year.

Entries must be in the hands of the Conference Organiser by the date advertised on the conference website. Postal entries must be carefully packed and include stamps or postal order sufficient to cover the cost of return postage, where necessary.

CATEGORIES

- Student Illustration Section
  Colour
  Black and White
- Open Illustration Section
  Colour
  Black and White
- Photographic Section

Each entry is to be accompanied by the following information:

1. Name of entrant
2. Postal address
3. Category of entry/entries
4. Current enrolment details (if a student)
5. Scientific name of species illustrated

The Society has usually made available $100 for First Prize and $50 for Second Prize in each of the four illustration categories and $100, $50 and $25 for First, Second and Third Prizes in the photographic section. Highly commended certificates will also be awarded where appropriate. The judges retain the right not to award all prizes if entry numbers or standards are not sufficient.

The Australian Entomological Society shall have the right to display selected works in public and to reproduce the illustrations, with appropriate acknowledgment, on Society goods which it sells and in magazines for a fee.

Please send your entries to:
Dr Terry Houston
Senior Curator (Entomology)
Dept of Terrestrial Zoology
Western Australian Museum
Locked Bag 49
Welshpool WA 6986

Australian Entomological Society Inc. Research Grant Scheme

The AES Research Grants Scheme is intended to encourage the advancement and dissemination of entomological knowledge, particularly in

relation to the Australian fauna. Applications for conference travel will not be considered.

The grants are primarily for small, short-term projects and will be available only to members of the Society of at least 12 months standing. Groups will be eligible provided that the primary researcher is a Society member. Total funds available will vary from year to year but will normally be in the order of $2000.

A report to the Executive in a form suitable for publication in Myrmecia will be required at the end of the project or, at the latest, by December in the year of the grant.

Each application needs to state clearly:

- the aim of the project
- the expected duration of the project
- a detailed budget, and
- contact addresses (including email) and telephone numbers of the participants

The names of one or two possible referees may also be supplied.

The Society Executive will appoint a selection panel to allocate and administer the grants. Applications may be for any amount up to $2000 but remember that small, short-term projects which enable a diverse range of work to be funded will be favoured. Successful applicants will be notified in December and published in Myrmecia in the following (February) issue.

Please include three copies of your application and mail to the Secretary of the Society:

Dr Alice Wells
Australian Biological Resources Study
PO Box 787
Canberra ACT 2601
Australia

All entries must be received by 31st October of the grant year.

2010 AUSTRALIAN MUSEUM EUREKA PRIZES REWARDING SCIENCE

Enter the 2010 Australian Museum Eureka Prizes and you're already celebrating your successes, recognising your team and rewarding yourself.

The Eurekas are Australia's premier awards for science and scientists. Winners gain national recognition for their word and take home cash prizes.

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The Eurekas are Australia's premier awards for science and scientists. Winners gain national recognition for their work and take home cash prizes.

Isn't it time your work was rewarded and recognised more widely?

Check out the options and enter online at australianmuseum.net.au/eureka

AUSTRALIAN GEOGRAPHIC SOCIETY:
FUNDRAISER FOR INVERTEBRATES
WHO YOU CALLING
SPINELESS?
DONATE $2 OR MORE to help the AG Society
raise $20,000 to save Australia's Invertebrates

The United Nations has designated 2010 the International Year of Biodiversity to help celebrate all life on Earth. With this in mind, AGS is holding a *Biodiversity Appeal* to raise money to assist projects that are studying the world's forgotten life forms, the hidden creatures that are often overlooked in mainstream conservation causes – the invertebrates. Over 65% of the described species in Australia are invertebrates and it is thought that invertebrates may make up between 95-99% of animals on the planet. Australia is a megadiverse country and one of AGS goals is to help sustain that biodiversity.

Each year in conjunction with Australian Geographic Retail stores, AGS runs fundraising appeals for threatened species. These appeals are usually held on a quarterly basis running for three months each. Each appeal is publicised within an issue of the Australian Geographic Journal, through promotion on the Australian Geographic website and through over 50 Australian Geographic Retail stores around Australia. Each Australian Geographic store has a donation box and can also take donations through the register.

For the second quarter of this year AGS are attempting to raise the profile of invertebrates, instead of going for the usual warm and furry animals http://www.australiangeographic.com.au/society/fundraiser-invertebrates.htm). The society is hoping to get the word out about some of the lesser known endangered species!

Funds from the Biodiversity Appeal will go to scientific research currently being undertaken by the Northern Territory Museum and Art Gallery, the Victorian National Parks Association and the Tasmanian Dept of Primary Industry, Parks, Water and Environment. These three institutions were selected because they submitted successful AGS research applications on threatened species projects.

You can make a donation in any AG Store, or send a cheque or money order to AGS, GPO Box 4088, Sydney, NSW 2001. Please write *Biodiversity Appeal* on the back of the envelope. There is also an online donation facility for people to donate via the Australian Geographic website (http://www.everydayhero.com.au/charity/donate/654).

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